Grammar, Ambiguity, and Descriptions: A Study in the Semantics of Definite Descriptions

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GRAMMAR, AMBIGUITY, AND DESCRIPTIONS

A STUDY IN THE SEMANTICS OF DEFINITE DESCRIPTIONS

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I confirm that no part of the material contained in this thesis has previously been submitted for any degree in this or any other university. All the material is the author's own work, except for quotations and paraphrases which have been suitably indicated.

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CONTENTS

LIST OF ABBREVIATIONS

A	Adjective	167
AP	Adjectival Phrase	167
ADV	Adverb	167
ADVP	Adverb Phrase	167
AT	Ambiguity Thesis	24
C	Complementizer	167
CP	Complementizer Phrase	167
CAP	Classical Ambiguity Problem	12
C-I	The Conceptual-Intentional Interface	164
D	Determiner	167
DP	Determiner Phrase	167
$D^{\#}$	Higher Determiner	134
$D^{\#}P$	Higher Determiner Phrase	134
Deix	Deixis	134
DeixP	Deictic Phrase	134
EF	Edge Feature	166
EST	Extended Standard Theory	175
Fin	Finiteness	185
FinP	Finiteness Phrase	185
FL	The Faculty of Language	157
Foc	Focus	185
FocP	Focus Phrase	185
Force	Force	185
ForceP	Force Phrase	185
GAP1	First Grammatical Ambiguity Problem	12
GAP2	Second Grammatical Ambiguity Problem	12
GB	Government & Binding Theory	175
GT	Grammatical Thesis	26
L_A	Logophoric Agent	188
L_P	Logophoric Patient	188
LEX	Lexicon	164
N	Noun	167
NP	Noun Phrase	167
n	Small N	167

*n*P	Small N Phrase	167
Num	Number	195
NumP	Number Phrase	195
OD	'On Denoting' (Russell, 1905)	58
P	Preposition	167
PP	Prepositional Phrase	167
PM	*Principia Mathematica* (Russell & Whitehead, 1910)	63
POM	*Principles of Mathematics* (Russell, 1903)	58
QT	Quantificational Thesis	25
RT	Referential Thesis	25
SE_F	Speech-Event Features	231
S_T	Speech-Event Time	188
S_L	Speech-Event Location	188
S-M	The Sensory-Motor Interface	164
SMT	Strong Minimalist Thesis	175
T	Tense	167
TP	Tense Phrase	167
Top	Topic	185
TopP	Topic Phrase	185
UG	Universal Grammar	158
V	Verb	167
VP	Verb Phrase	167
*v**	Transitive Verb	167
*v**P	Transitive Verb Phrase	167

ABSTRACT

The semantics of definite descriptions has been a central topic in philosophy of language ever since Russell's landmark paper 'On Denoting' (1905). Russell argued that definite descriptions should not be seen as referential expressions, but instead as quantificational expressions. In other words, a sentential utterance containing a definite description should be understood as expressing a general/object-independent proposition. A problem arises with the view once we consider the fact that definite descriptions are used frequently and consistently to refer to particular individuals. Through this observation, Donnellan (1966) argued that definite descriptions would be better understood as having two distinct uses, one referential and one attributive or quantificational. We can call this the ambiguity problem in definite descriptions.

In the following thesis we will present various solutions to the ambiguity problem. Initially, we will begin by analysing a modified version of Russell's thesis drawing upon work from Kripke (1981) and Neale (1990; 2004; 2005). This modern Russellian theory argues that the semantics of definite descriptions is always associated with a quantificational function, but that a speaker may employ definite descriptions to communicate something referential through the accompaniment of various pieces of pragmatic machinery. It is what we will term a 'quantificational thesis'. In contrast to this view we will analyse two theses, from Kaplan (1970; 1979; 1989a; 1989b) and Devitt (1981; 2004; 2007a), that each defend the existence of a referential function in the semantics of definite descriptions, in addition to a quantificational function. According to these views, there is a linguistic convention for using definite descriptions referentially, which is attested to in the ubiquitous referential uses in natural language discourse, and this convention must be grounded in their respective semantics. We will label these positions 'ambiguity theses'.

Throughout the foregoing thesis we will argue that the theories of descriptions under discussion adhere to a lexicocentric view of compositional semantics. A lexicocentric view of compositional semantics defends the idea that we can isolate words and assign them semantic-types

(their contribution to the compositional structure) without reference to the larger grammatical structures in which they fall. Therefore, the theories take the semantics of the definite article to be captured in its entry in the mental lexicon. Through an analysis of the faculty of language as understood in the linguistic program of generative grammar, we will argue that a lexicon contains no such information as to do so would involve taking it to contain grammatically complex information. Furthermore, we will argue that compositional semantics is best understood as emerging through grammatical derivations, and in particular a phase based derivational syntax. Through an analysis of three grammatical phases – a determiner phase, transitive verb phase, and complementizer phase – we will discover that much of what is traditionally labelled semantic, and captured within a type-based compositional semantics, can be reduced to properties of grammar. We will label this a 'grammatical theory of meaning'.

We will then apply this theory to various instances of definite descriptions, focusing on examples traditionally brought up in the literature, to illustrate that the semantics of definite descriptions can be understood best through the topology of the determiner phase and the wider grammatical configurations in which it can be placed. Furthermore, we aim to illustrate that the linguistic meaning of any sentential utterance containing a definite description can be given in reference to that utterance's grammar and, critically, its grammar will dictate the utterance's truth-conditional content. We will then offer an account of the genesis of the ambiguity problem(s) that have been discussed in the literature, which places grammar at the heart of the explanation. In doing this we will streamline our theory of descriptions with recent work in generative grammar and linguistic cartography, and take it to have greater empirical adequacy than the alternative quantificational and ambiguity theses.

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I came to Durham in the autumn of 2010 to undertake a master's degree in philosophy with specialisation in philosophy of language. At the time, the possibility of continuing onto a PhD program seemed remote, but over the course of the twelve months I developed a keen interest in all things pertinent to language; semantics, pragmatics, syntactic theory, language evolution, language acquisition, and so on. The person responsible for sparking this interest, Wolfram Hinzen, became my primary supervisor on the present thesis. Over the course of the last five years Wolfram has been a constant source of inspiration and encouragement, even when the task of producing a thesis overwhelmed. The support of one's supervisor is central to completing a doctoral thesis, and I could always rely on Wolfram for this; for this I will always be grateful.

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INTRODUCTION

"When *I* use a word", Humpty Dumpty said, in rather a scornful tone, "it means just what I choose it to mean – neither more nor less."

"The question is," said Alice, "whether you *can* make words mean so many different things."

Through the Looking-Glass - Lewis Carroll[1]

A completed theory of meaning is the holy grail of the philosophy of language. Nevertheless, providing such a theory is not straightforward. The beginning of such a theory is instantly hit with a problem, which can be characterized in a distinction between those types of words that seem to carry idiosyncratic information as arbitrary signs for objects or events (*apple*, *desk*, *football*, *run*, *write*), and those whose role is to structure these arbitrary

[1] Gardner (2000) observes that Humpty Dumpty's views on meaning shares an 'affinity' with Carroll's work in *Symbolic Logic*. Against the logicians, Carroll claims that "[t]hey speak of the Copula of a Proposition 'with bated breath', almost as if it were a living, conscious Entity, capable of declaring for itself what it chose to mean, and that we, poor human creatures, had nothing to do but to ascertain *what* was its sovereign will and pleasure, and submit to it" (1977, 232).

signs into useable linguistic strings (*and*, *or*, *is*, *some*, *every*, *the*).[2] We can label the distinction one between descriptive/lexical words and functional/grammatical words, and the study of each 'lexical semantics' and 'compositional semantics' respectively.[3] If language were bodily, then we might speak of the latter as providing the 'skeleton of meaning' and the former as providing its 'flesh' (Hinzen 2009b). It is the contention of this thesis that whilst Humpty Dumpty's claim *may* hold of descriptive words, language's flesh, it is certainly false if applied to functional words, language's skeleton.[4] We may have a certain authority over the word *apple*, but functional words are the cogs that keep language turning, they are the bones and ligaments that give natural language its particular anatomy, and with respect to such words our role as philosophers is like that of a anatomist, we must discover the skeletal blueprint for compositional semantics that nature has already put in place.

The development of compositional semantics over the last century is tied to that of formal logic.[5] Formal logic has provided many of the tools and mechanisms available for those wishing to give an account of the skeleton of meaning as well as the contribution of parts of speech to it. The aim of such an approach is to provide a way of capturing parts of speech formally that dictates how they may combine in any novel utterance to ground its meaning. Interestingly, however, one part of speech in particular has proved immensely difficult to analyse in a non-divisive manner, namely definite descriptions. The vast amount of ink spilt on the semantics of definite descriptions is testament to its seeming ability to evade capture,

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[2] We can understand the phrase 'arbitrary signs for objects or events' in the sense of de Saussure (1916), who understands a word to be an *arbitrary* pairing of sound, or sign more generally, and meaning.

[3] Interestingly, a similar distinction was drawn by medieval logicians, who distinguished between categorematic and syncategorematic words. The first sort, categorematic words, were understood as "those that can serve by themselves as terms in the strictest sense" and the second sort, syncategorematic words, are "those, such as conjunctions and prepositions, that enter into propositions only along with categorematic words" (Spade 1982, 190; see also de Rijk 1982).

[4] The truth is that if it were to hold even of descriptive/lexical words, then successful communication would become a thing of the past.

[5] It is important to note that compositional semantic theories existed prior to the introduction of formal vocabulary as observed in Frege (1879; 1884; 1893) and Russell (1903; 1905; 1910/1962). For instance, a form of compositional semantics can be traced back to Indian grammarians such as Pānini, which did not employ the sorts of formal machinery present in Frege and Russell (for more on Indian philosophy of language see Deshpande 2014).

that is, to evade having a settled contribution to the skeleton of meaning. The origin of the debate is to be found in Russell's 'On Denoting' (1905), which, perhaps contrary to our expectations, takes definite descriptions to be quantificational. The impact of 'On Denoting' on philosophy cannot be underestimated and it led Ramsey to label the theory a 'paradigm of philosophy' (1931, 263). However, the definite descriptions literature remains at an impasse, between those that continue to champion the Russellian theory and those that reject it in favour of an alternative, that definite descriptions are referential or ambiguous. The present thesis is concerned precisely with ridding the literature of this deadlock through re-imagining the debate as one concerning grammatical structure. It is the contention of this thesis that grammar can help explain why a problem concerning the semantics of definite descriptions arises in the first place, as well as a potential solution to it. Therefore, the thesis is concerned with the semantics of just one word, and therefore just one part of the semantic blueprint, the definite article.

In what follows we will move away from the idea that grammar is ancillary to the construction of meaning, which is a trend that has its origin in both linguistics and philosophy. Chomsky, for instance, began his generative grammar enterprise with the claim that syntax is an 'autonomous' mechanism of language operating in isolation from, and independently of, meaning (1957, 15). Russell made a similar claim and warned that 'any attempt to be precise and accurate', with regards semantics, 'requires modification of common speech both as regards vocabulary and as regards syntax' (1957, 387). In opposition to these views we will place grammar at the heart of the skeleton of meaning, and claim that it is productive in the composition of semantic information within natural language. We will argue that grammar provides a nuanced and more fine-grained account of how meaning is built up in a sentence than formal logic, and that this can be used to further our understanding of the semantics of definite descriptions. Furthermore, we will argue that grammar provides a more fine-grained account of natural language reference than formal semantics, it expands the forms of reference enabled in formal logic through creating a 'hierarchy of reference' (Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014), which we will take to help explain the impasse in the descriptions literature.

In a moment we will provide an outline of the structure of the thesis and the contributions that each chapter aims to make. Before we do this, though, it is important to set some limitations on what we aim to achieve.

The first limitation is straightforwardly put, we will not argue that grammar provides insight into the semantic contribution of descriptive/lexical words in the construction of a sentence beyond the grammatical categories that they are situated within. The idea here is that there are parts of language that grammar has no authority over. For instance, it is not the case that grammar can tell us anything about the semantic differences between the words *apple* and *pear*. It can tell us about the differences between *three apples* and *the pear* but it cannot impact the descriptive, or idiosyncratic, information carried by a lexical item. This constitutes the first limitation.

The second limitation is more pertinent to the progression of compositional semantics as a field of inquiry. In developing the idea that grammar informs semantics we will often characterize it as contrasting with work in formal semantics. Furthermore, we will criticize formal semantics for having a one-size-fits-all view of reference in natural language, a reduced and restrictive set of 'forms of reference'. As we will see, however, the criticism is aimed at one particular conception of formal semantics, a lexicocentric version. However, the present thesis should not be viewed as rejecting or undermining the legitimacy of the application of formal logic to natural language semantics. Instead, it will be hoped that the work presented can be viewed as aiding in the grounding of formal semantics as a naturalistic and explanatory discipline. The development of the philosophy of language is most productive when it exhibits collaboration with work in linguistics, and the thesis presented here aims to further this partnership. It is not the aim of this thesis to disregard formal semantics as a discipline, and if it were it would surely fail. The aim is simply to provide a novel approach to how we understand the construction of semantic content within a sentence that places grammar at the heart of this assembly line. We leave open the possibility that the work presented can be integrated into the formal semantic discipline, we therefore view the result of this thesis primarily as collaborative.

The following thesis can be divided into three parts. The first chunk (§1 and §2) details three ambiguity problems in definite descriptions and the

research framework that surrounds the literature dedicated to solving these problems. The second chunk provides a detailed analysis of the Russellian theory of descriptions (§3), which provides a solution to the problems through invoking pragmatics, and two major opposing theories from Kaplan and Devitt (§4), which both provide a semantic solution to the problems. The theories detailed in §3 and §4 will ultimately be rejected. The final chunk of the thesis will concern our own solution, which is developed on the basis that the ambiguity problems originate in virtue of facts about grammar. In §5 we will develop the idea that grammatical structure provides a skeleton of meaning. Finally, in §6 we will apply our work on grammar to various definite descriptions and observe that we can explain away the three ambiguity problems through the grammar of DPs in conjunction with the grammatical environments in which they can be placed.

§1 will provide an extensive look into what we will understand as three independent ambiguity problems that emerge from the descriptions literature. It has long been accepted that definite descriptions have two distinct uses, the first is where a speaker uses a definite description to refer to a particular individual, and the second is where a speaker does not have a particular individual in mind but instead uses a definite description to attribute a property to who/whatever satisfies its descriptive content. It is the contention of this thesis that these uses give rise to the following three ambiguity problems (§1.1). In §1.2 we will analyse what we will term the 'classical ambiguity problem'. (CAP): Take an expression ζ containing a definite description d, is it possible that in one context of use d is semantically referential and in another context of use d is semantically quantificational? In §1.3 we will consider two grammatical ambiguity problems (GAP1/GAP2). GAP1: Take two grammatically distinct definite descriptions d and d' that are part of the same wider expression ζ, is it possible that d is semantically referential and d' is semantically quantificational in virtue of being grammatically distinct? GAP2: Take two grammatically distinct expressions ζ and ζ', each of which contains the same definite description d, is it possible that ζ forces d to have a referential semantics and ζ' forces d to have a quantificational semantics purely in virtue of the grammatical environment within which d falls? Too often the descriptions literature regularly jumps between these distinct problems without isolating their independence. The purpose of the thesis is to

provide an account of the genesis of each problem. We therefore begin with some stage setting through teasing apart the problems to be addressed.

§2 will provide a detailed analysis of the research framework that is at the heart of the definite descriptions literature. To begin with, we will detail what we take to be the semantic terrain (§2.1) that surrounds the literature, which we will characterize through the distinction between literalism and contextualism. In particular, we will emphasize how each theory views the role of linguistic meaning in the specification of truth-condition content in an utterance or 'what is said'. This section will introduce and define three terms that will be used throughout the thesis linguistic meaning, 'what is said', and 'what is implicated'. In §2.2 we will then provide a sketch of one way of characterizing linguistic meaning, which will be carried out through a discussion of formal semantics. Following this, we will detail how linguistic meaning interacts with language use and pragmatics more generally in §2.3. The upshot of this will be a schematic for how we should understand referential expressions within this semantic terrain, which will be a lexicocentric account (an account whereby a term's being referential is a result of its lexical entry). To conclude this chapter, in §2.4 we will provide an overview of the 'forms of reference' available to a theorist working within the confines of this research framework. It will later be argued that these forms of reference negatively impact the options available for explaining the three ambiguity problems.

§3 will be concerned with providing an exposition and discussion of Russell's theory of descriptions as well as two strategic amendments made to it by Kripke and Neale. To begin with, in §3.1 we will outline Russell's theory and the problems it was designed to solve. We will observe that the theory takes the linguistic meaning of a sentence containing a definite description to equate to a quantificational paraphrase, which in turn equates to the sentence's linguistic meaning and fully determines 'what is said'. In §3.2 we will raise the CAP against the theory and Kripke's solution to it. The Russellian position will be upheld and solve the CAP through positing pragmatic machinery, which enables a speaker to communicate something referential without alteration to the quantificational paraphrase. The rest of the chapter, §3.3 onwards, will be dedicated to Neale's amendments to the theory. To begin with we will look at Neale's alteration of the paraphrase that aims to bring it in line with DPs and specify the

semantic contribution of the definite article, and then we will look at Neale's response to three problems commonly raised against the Russellian position (misdescription, incompleteness, and referential anaphora). We will conclude by providing two reasons to reject the Russellian position: (*i*) the Russellian paraphrase, even after Neale's modifications, does not tally with grammatical facts about DPs, and (*ii*) the problems of, at least, incompleteness and referential anaphora are better explained through grammar. Furthermore, we will conclude that the pragmatic account of the ambiguity problems is a direct consequence of the restrictive forms of reference, and lexicocentric grounding, produced by formal semantics, which need not be accepted once we expand the forms of reference.

§4 will turn to consider two rival positions to the Russellian theory, which both defend a semantic genesis to the ambiguity problems. In §4.1 we will introduce Kaplan's direct reference theory, which takes referential uses of definite descriptions to include a semantic operator DTHAT. The operator DTHAT is part of the linguistic meaning of a referential use of a definite description, and contributes directly to 'what is said'. We will reject Kaplan's theory on the basis that it grounds the presence of DTHAT in referential uses upon such uses being linguistic conventions, but it fails to give a non-circular account of how the convention arises in the first place. In §4.2 we turn to consider Devitt's causal theory, which takes a referential use of a definite description to be linked to its referent through a designating-chain. The presence of designating chains is again defended in relation to referential uses being instances of a linguistic convention. We will reject Devitt's theory for the same reason that we rejected Kaplan's, it does not provide an account of how such a convention arises. Throughout this chapter we will illustrate how such conventions can be grounded in facts concerning the grammar of definite descriptions and cross-linguistic research. Having pursued a pragmatic account of the ambiguity problems and two semantic accounts we now move toward a third option, a grammatical account.

§5 will provide the groundwork for our grammatical account of the genesis of the three ambiguity problems. In §5.1 we will introduce the framework within which our theory will be developed, namely generative grammar, and will illustrate how it can be understood as a naturalistic enterprise. Following this, in §5.2 we will provide a detailed account of the component

parts of the faculty of language as understood in generative grammar: the lexicon, the sensor-motor interface, the conceptual-intentional interface, and the syntactic component. Finally, we will introduce the idea that syntactic derivations proceed via phases. The final point will lead into our attempt to align compositional semantics with grammar. In §5.3 we will argue that the three core phases involved in the derivation of a syntactic object directly correspond to certain semantic mechanisms traditionally subsumed under the rubric of formal semantics. The three phases C, *v**, and D, will be said to organise clausal structure, thematic structure, and the forms of reference exhibited by the topology of DPs respectively. These results will be viewed as evidence for the view that grammar provides us with a 'skeleton of thought' or 'blueprint' for linguistic meaning. The concluding part of this chapter, in §5.4, will argue that grammar provides general directions for use (understood in the vein of Strawson 1950), and that these directions constitute linguistic meaning. Furthermore, we will argue (following Sigurðsson 2004b; 2007; and Hinzen *forthcoming*), that the linguistic meaning produced by grammar fully specifies 'what is said', therefore carving out an alternative to both literalism and contextualism and opening up a new avenue within which to pursue the three ambiguity problems.

§6 will provide the final stage in building our thesis. We will begin in §6.1 by expanding the forms of reference that have been employed in the descriptions literature. We will argue that the options provided in the semantic framework outlined at the start are not sufficient for the complex referential abilities that natural language affords us. Through a discussion of various types of definite description (deictic definite descriptions, adjectival modification in DPs, possessives, and epithets) we will develop a wide range of forms of reference available to such expressions. We will argue that the semantic status of a definite description is dependent upon two factors, (*i*) the configuration of the DP of which it is a part, and (*ii*) the grammatical environment within which that DP falls. In §6.2 we will reject all possibility that the definite article can be given a lexicocentric analysis, thereby rejecting that the article is itself semantically ambiguous, which will be based upon our arguments from grammar. Then in §6.3 we will put down some final words on how the linguistic convention associated with referential uses arose. Finally, in §6.4 we will look at the three ambiguity problems and explain their genesis and their respective solutions. We will

argue that the CAP does not hold and its emergence in the literature is the result of a failure to recognise its independence from the two GAPs.[6] Furthermore, we will argue that the two GAPs are solved, unsurprisingly, with reference to the grammar of DPs (GAP1) and the grammatical environments in which those DPs can be placed (GAP2). In other words, whenever we see ambiguous uses of definite descriptions, there will always be some grammatical difference present in the background.

The structure of the thesis should now be clear. We can conclude this introduce with a summation of a counterexample to Humpty Dumpty's claim above. It is not the case that we have authority of the meanings of certain words. The meaning of the definite article is highly regimented through the grammar of DPs and the grammatical environments in which DPs can be placed. It is true that definite descriptions can be used in multifarious ways with corresponding effects on interpretation, but these are all grounded and distinguished in grammar. Therefore, grammar is not ancillary or subsidiary to meaning, but is instead what gives it its shape.

[6] We will argue that it does not hold only insofar as there are no grammatical differences in the two uses.

1

THE AMBIGUITY PROBLEMS

A theory of meaning for natural language involves both lexical semantics (the meanings of individual words), and compositional semantics (how those words interact is phrases and clauses). The semantics of definite descriptions is a study interested in both levels, it is lexical insofar as it is interested in the meaning of the definite article, and it is compositional insofar as it is interested in the contribution of the article to definite descriptions and clauses that they are part of. It is commonly accepted within the philosophical literature that speakers can employ definite descriptions in two distinct ways, the first makes use of the expression to say something of a *particular* individual, and the second makes use of the expression to simply say something about *what* or *whoever* satisfies that expression's descriptive content. The difference might be captured in the speaker's orientation towards the individual. In the first case the speaker has in mind a particular individual and wishes to say something of that particular individual, whereas in the second case the speaker has only a basic expectation that something or other will satisfy the descriptive content of the utterance. We can label the first use referential and the second attributive or quantificational. The existence of the two uses must

be accounted for by any theory of descriptions, we will come to label this problem the ambiguity problem in descriptions. Accounting for the existence of two distinct uses has occupied much of the literature vis-à-vis definite descriptions since its inception, yet there remains to date an impasse in the topic.[7] It is the purpose of this thesis to provide a novel solution to this impasse.

To start with, let us provide a working definition of linguistic ambiguity:

(1) Linguistic Ambiguity

> An expression ζ is ambiguous if and only if its contribution to the content of what is expressed is distinct across uses (*bank* – as in riverside – vs. *bank* – monetary deposit).[8]

If an expression ζ appears to exhibit (1), then we must explain why. We must explain the genesis of its ambiguity. Definite descriptions exhibit an ambiguity through having two distinct uses, and hence a theory of descriptions must account for the genesis of this ambiguity. We will claim that the impasse concerns three interrelated but independent ambiguity problems and the fact that there is no universally accepted answer to them. The three problems all concern the two uses, referential and attributive, outlined above.

At the outset, in §1.1 we will give a cursory overview of each of the three problems and state why it is useful to separate them for the purposes of our investigation. Following this, in §1.2 we will analyse the first of the ambiguity problems, which we will label the classical ambiguity problem (CAP). It will be observed that the CAP gave rise to many of the issues surrounding the semantics of definite descriptions that are discussed today, as well as many of the theories of descriptions currently on the table. Next, in §1.3 we will discuss two further problems, which we will label grammatical ambiguity problems (GAPs). The purpose of this is to illustrate that the role of grammar may well be more central to the

[7] In conjunction with the ambiguity problem there remain numerous further issues in definite descriptions, a recent anthology of papers collected by Remier and Bezuidenhout (2004) as well as the centenary commemoration of 'On Denoting' (Neale, 2005a) detail many of the controversies surrounding the various debates.

[8] The example of *bank* is an instance of a lexical ambiguity. We might solve such ambiguities by stated that whilst the two are homophones they are distinct words. However, further ambiguities that emerge in functional/grammatical words are not so easily accounted for.

understanding the semantics of definite descriptions than is commonly thought. Finally, in §1.4 we will outline four options available in explaining the genesis of the ambiguity problems: an ambiguity thesis (AT), a referential thesis (RT), a quantificational thesis (QT), and a grammatical thesis (GT). The primary aim of this chapter is to provide an analysis of the ambiguity problems that will form the backbone of this thesis, and a secondary aim is to begin igniting a narrative within which to ground a grammatical account of definite descriptions.

1.1

THREE AMBIGUITY PROBLEMS

In what follows we will put forward three independent ambiguity problems in definite descriptions. The three problems can each be understood as emerging in the descriptions literature, but they have not been explicitly spelt out. It is important to make the distinctions however, as a solution to one problem need not be a solution to the other(s). The first problem is the classical ambiguity problem, which emerges from the work of Donnellan (1966; 1968):

(CAP) The Classical Ambiguity Problem (CAP)

> Take an expression ζ containing a definite description d, is it possible that in one context of use d is semantically referential and in another context of use d is semantically quantificational?

In addition to the traditional problem, we posit two further grammatical ambiguity problems, which come to the fore in more recent literature:

(GAP1) The First Grammatical Ambiguity Problem (GAP1)

> Take two grammatically distinct definite descriptions d and d' that are part of the same wider expression ζ, is it possible that d is semantically referential and d' is semantically quantificational in virtue of being grammatically distinct?

And,

(GAP2) The Second Grammatical Ambiguity Problem (GAP2)

> Take two grammatically distinct expressions ζ and ζ', each of which contains the same definite description *d*, is it possible that ζ forces *d* to have a referential semantics and ζ' forces *d* to have a quantificational semantics purely in virtue of the grammatical environment in which *d* falls?

From this point onwards, we will assume that if a thesis is taken to solve the problem of ambiguity in definite descriptions, then it will provide a solution to the genesis of all three problems.

Frequently in the literature, all three problems are discussed in unison. The issue this raises is that a negative answer to CAP does not necessarily entail a negative answer to GAP1 and GAP2. Similarly, a negative answer to GAP1 does not entail a negative answer to GAP2 and vice versa. In virtue of this, when discussing some established theories in §3 and §4 we will attempt to retain some clarity through detailing which problem a particular theory of descriptions is designed to solve and how such theories might go about answering each of the three problems. The stronger the theory, the more success it will have at answering all three problems.

The three ambiguity problems were instigated by a counter-intuitive account of definite descriptions offered by Russell. Russell claimed that definite descriptions, when part of a sentential utterance, have an attributive or quantificational semantics (1905). The motivation for the thesis was to discredit a treatment of definite descriptions as singular terms, which are terms whose meanings depend upon their referents. A central issue that emerges from the singular term treatment is that in cases where they fail to pick out a referent they become meaningless. The extension of this is that any sentential utterance containing such a definite description would likewise be meaningless and lack truth-conditions. It is this precise worry that Russell intended to quash. A quantificational treatment avoids this problem through denying that the semantics of a definite description depends upon a particular individual. Therefore, if the descriptive content fails to pick anything out, then quantifier scope can be used to throw out an appropriate truth-value (1905, 490).[9]

[9] The Russellian theory will be analysed at length in §3.

Some forty-five years later, Strawson highlighted a clear intuition that definite descriptions are used ubiquitously and felicitously as referential expressions, and employed this intuition in defending the view that the referential uses should be represented semantically (1950, 320).[10] According to this view, referring is not something an expression does on its own but is instead something that a speaker may use an expression for, and whilst definite descriptions may be used on occasion as quantifiers this doesn't rule out the possibility that they may be used on occasion to refer (1950, 326). The proposal was embedded in a semantic theory that takes the meaning of an expression to be associated with 'general directions' for its use. Definite descriptions can be used referentially, and therefore this fact should be represented in their semantics (1950, 327). A use of a definite description that results in a failure to pick out a particular individual would be considered "spurious", neither true nor false, yet meaningful (1950, 331).[11] The seed of a possible ambiguity problem was thus planted.

Donnellan raised the possibility that we might integrate the two uses within a single theory, thereby providing an empirically more powerful theory (1966).[12] With respect to the ambiguity, Reimer and Bezuidenhout state that Donnellan "attempted to incorporate elements of both Russell's and Strawson's account… he argued that whilst definite descriptions can function as quantifiers, such expressions can also function as referring expressions" (2004, 183). Furthermore, Donnellan wanted to state that the referential uses of definite descriptions were indeed analogous to uses of other singular terms (1966, 283-302). It is here that we find the origin of the CAP. A central question that emerged through these considerations is that of whether the dual function is best explained through semantics or supplementary pragmatic machinery.

The 'dual function' of definite descriptions operates on two levels, the first concerns its existence *simpliciter* and the second concerns its genesis. The former is straightforwardly characterized, and is hardly controversial,

[10] Reimer and Bezuidenhout note that Strawson did not intend to imply that such expressions are logically proper names, but instead "meant only that definite descriptions are linguistic devices used by speakers to 'pick out' objects or individuals about whom they wish to speak", and therefore "never functioned as quantifiers" (2004, 183).

[11] In §5.4 we will resurrect Strawson's idea that semantics can be associated with general directions for use, but we will motivate the idea through grounding it in grammar.

[12] Interestingly Donnellan believed that neither Russell nor Strawson accounted for referential uses of definite descriptions (1966, 281).

whereas the latter remains a matter of debate to this day. The existence of the ambiguity is established in the following pair of sentences:

(2) The desk is covered with books.

(3) I hope the joiner builds the desk in mahogany.

The first sentence captures a referential use. A felicitous utterance of (2) will pick out a particular desk, which, in order for the sentence to be felicitous, is salient in either the utterance context or ensuing discourse. The second sentence captures an attributive/quantificational use. A felicitous utterance of (3) does not require the existence of a particular desk, and it requires no salient individual in either the context or discourse. The fact that the definite article can elicit these two functions remains a mystery.

In what follows we will outline the CAP, which gave rise to many issues surrounding the semantics of definite descriptions in the first place. We will do this through an analysis of Donnellan's examples (1966; 1968). Next, we will outline GAP1 and GAP2 providing examples for each. As we progress through three prominent theories of descriptions in §3 and §4 it will be flagged up that the theories often switch between the three problems without indicating when a switch has taken place. In making the distinctions above we will be able to state clearly the strength of each theory with respect to each problem.

1.2

THE CLASSICAL AMBIGUITY PROBLEM

The classical ambiguity problem (CAP) is first discussed by Linsky (1963) who states that a speaker making an utterance of (4) can succeed in referring to a particular individual even if the woman spoken of is a spinster:

(4) Her husband is kind to her.

Assuming that the woman spoken about lacks a husband, the utterance is seemingly neither true nor false, yet in a context where a particular individual is salient, and at least for all intents and purposes appears to be the husband, the speaker may succeed in referring to that particular individual. The idea is that one can succeed in making reference to an

individual using a definite description even in cases where the descriptive content it contains fails to apply to the intended individual. It is this latter observation that Donnellan makes use of in creating the CAP.

The prominent formulation of the ambiguity is found in Donnellan (1966). Donnellan illustrates that a sentence containing a definite description can in one context make a quantificational 'statement' and in another context make a referential 'statement' (1966, 285):

> A speaker who uses a definite description attributively in an assertion states something about whoever or whatever is the so-and-so. A speaker who uses a definite description referentially in an assertion, on the other hand, uses the description to enable his audience to pick out whom or what he is talking about and states something about that person or thing. In the first case the definite description might be said to occur essentially, for the speaker wishes to assert something about whatever or whoever fits that description; but in the referential use the definite description is merely one tool for doing a certain job--calling attention to a person or thing--and in general any other device for doing the same job, another description or a name, would do as well. In the attributive use, the attribute of being the so-and-so is all important, while it is not in the referential use. (1966, 285)

Importantly, for Donnellan the referential use of a description employs descriptive content as "merely one tool for doing a certain job", whereas in the attributive use the descriptive content is central. For instance, in the referential use it may be equally felicitous to use a proper name, a complex demonstrative, or a pronoun, whereas the same does not apply in the attributive use. We will come to see in §6.1 that this is in fact predicated by our grammatical thesis, which will provide further support for the thesis.

Donnellan provides as concrete examples to ground the ambiguity. The example makes use of two utterances of *Smith's murderer is insane*, each of which is uttered in a distinct context.[13] The two contexts differ in that in the

[13] The possessive *Smith's murderer* can be understood as being derived from the definite description *the murderer of Smith* and hence qualifies as one itself. Possessives form just one grammatical construction taken in the literature to constitute definite descriptions. An analysis of a wider range of constructions is instigated by Neale (1990), which is discussed in §3.31. We provide a grammatical analysis of possessives in §6.13.

first there exists no salient referent to which the possessive *Smith's murderer* might apply, whereas in the second there is. The first context is described as one in which two people come across the dead body of Smith, who they know to be a lovable character, and it appears that Smith has been murdered. The second context is one in which the two people are in a courtroom witnessing the trial of Jones, who is both accused of Smith's murder and is behaving bizarrely in the dock. In the first circumstance an utterance of *Smith's murderer is insane* is said to be attributive, whereas in the second it is said to be referential (1966, 282-286). The reason for this is that in the first context the referent of the possessive is not present and there is no obvious link, be it causal or perceptual, between the speaker and the individual picked out, whereas in the second context both the speaker and audience have Jones in sight and hence treat him as the referent. In the first circumstance the speaker merely wishes to predicate insanity of whoever satisfies the descriptive content of the possessive, whereas in the second circumstance the descriptive content is merely used as a tool for calling reference to Jones (1966, 286-287). The ambiguity is therefore set within a single expression, and emerges purely as the result of the context of the utterance. It exhibits the CAP.

A further facet exists in the CAP, which involves instances of misdescription, and the truth-values that emerge as a result of misdescription. Linsky's example above illustrates that in contexts where a particular individual is salient it is possible to use a definite description to refer even when the descriptive content is misapplied. The same goes for Donnellan's example. In the court context an utterance of *Smith's murderer is insane* is said to apply to Jones even when Jones is in fact innocent. The context of the courtroom offers the speaker the ability to pick out Jones with the definite description *Smith's murderer* in virtue of the fact that Jones is the accused. Jones is salient enough in the assumed role of being Smith's murderer that the description can be felicitously used with him in mind. At this point it is worth reiterating Donnellan's claim that the definite description is "merely one tool for doing a certain job". Donnellan likens the referential use to terms that are typically assumed to be singular terms. With this in mind, the descriptive content becomes subservient to the act of reference, and, as with other singular terms, we can state that the definite description simply stands for the individual it picks out. A speaker is able

to misdescribe and succeed in referring in virtue of the definite description simply standing for a salient individual.

Conversely, in the attributive use the descriptive content is all-important. In a context where there is no salient individual, the meaning of the definite description is entirely dependent upon its descriptive content. In the referential use it is possible to misdescribe Jones but nevertheless communicate that he is insane, however the same does not hold in the attributive use. For instance, if two speakers are walking through the woods and come across the dead body of Smith without any salient murderer around, the utterance cannot misdescribe if the utterance is to be felicitous. If, for instance, Smith was subject to a freak accident, then an utterance of *Smith's murderer is insane* would be judged infelicitous after the true facts surrounding Smith came to light. Therefore, in the attributive use the descriptive content is paramount, whereas in the courtroom case the communicative act can fall back on the fact that there is a salient individual of whom both speaker and audience are aware.

Instances of misdescription divide the two uses further with respect to the resultant truth-values in the respective contexts. In the courtroom context the descriptive content can misapply and yet the speaker can still express a meaningful utterance, yet in the woods context the descriptive content is central to that meaning and cannot be replaced by other factors. Donnellan claims that in the courtroom context the speaker can state something true of Jones even in an instance of misdescription. The example is set up such that Jones is salient and acting bizarrely in the dock, and the definite description is used 'merely as one tool amongst many' to state of *that particular man Jones* that he is insane. In Donnellan's words "'I do not fail to refer merely because my audience does not correctly pick out what I am referring to… [n]or do I fail to refer when nothing fits the description" (1966, 295). The intended referent, Jones, is what is referred to. Alternatively, in the woods context, if Smith was not murdered, then it is not the case that the speaker said something true of Jones or anyone else. No salient individual is there to rescue the misdescription (1966, 295). In this context we wish to state of *whoever* murdered Smith that they are insane in virtue of their having murdered Smith, rather than any factor. The two uses therefore have distinct effects on the manner in which the truth-values for an utterance are

reached, and this difference can be seen in instances where the descriptive content fails to apply to an individual.

We can now outline the CAP in more detail:

(5) The CAP

i. The same expression ζ containing a definite description *d* can be used either referentially or quantificationally, depending upon the context. Definite descriptions therefore have a 'dual function'.

ii. If a speaker uses ζ referentially, then she has in mind a particular individual, whereas if she uses ζ quantificationally this condition is not necessary.

iii. If a speaker uses ζ referentially then the descriptive content is secondary to the referential function, whereas if ζ is used quantificationally it is primary.

iv. If a speaker uses ζ referentially, then she can succeed in referring to a particular individual even in the case of misdescription. The same does not hold of the quantificational use.

v. Following (*iv*), if a speaker uses ζ referentially then she can succeed in saying something true even if the individual picked out fails to satisfy *d*'s descriptive content.

Finally we have one last observation that is implied by (*i*):

vi. The ambiguity in ζ is not grounded in grammatical differences.[14] Instead, it is either semantic or pragmatic.

The descriptions literature engages with the ambiguity debate through the CAP. Nevertheless, it does not restrict itself solely to the issue of a single sentence have distinct uses across contexts. Advancing two further ambiguity problems, GAP1 and GAP2, will enable a clearer vantage point from which to analyse such theories of descriptions.

[14] The final point here is made purely in virtue of the way the problem is set up as regarding the surface structure of English.

1.3

TWO GRAMMATICAL AMBIGUITY PROBLEMS

In the above section we gave an outline of the CAP and we observed that it originated with respect to a single expression used across varying contents. A natural conclusion that follows from the CAP is that the ambiguity is not grammatical but is instead semantic or pragmatic. However, there are further ambiguity problems that suggest it would be hasty to reject a grammatical account. We will now outline two grammatical ambiguity problems, GAP1 and GAP2, which are so named in virtue of explicitly noting grammatical differences present in two uses. It would be a mistake to suggest that the definite descriptions literature has ignored these ambiguities but it is true that it tends not to disambiguate them from the CAP. Whilst this is not a problem in principle, it is perhaps a problem in practice. For, it is the contention of this thesis that the two GAPs give us insight into how to solve the CAP, and how to account for the semantics of definite descriptions more generally.

To reiterate, the GAP1 is as follows:

(GAP1) Take two grammatically distinct definite descriptions d and d' that are part of the same wider expression ζ, is it possible that d is semantically referential and d' is semantically quantificational in virtue of being grammatically distinct?

The following pair of sentences should illustrate the problem:

(6) The manager is angry.

(7) The mother of every child is angry.

The ambiguity is thus as follows, a felicitous use of (6) will refer to a particular individual that is salient in the context or ensuing discourse, whereas the same does not need to hold in a felicitous use of (7). Typically described, (6) illustrates a referential use, whereas (7) illustrates an attributive use. As with the CAP, the same distinction concerning misdescription applies.

The definite descriptions used in (6) and (7) are grammatically distinct, which can be illustrated through the fact that (7) can derive a possessive

construction *every child's mother*, which is not the case with (6). Another striking fact about the two is that certain expressions may be exchanged for the definite article in (6) and retain communicative efficacy, whilst the same expression fails to do so in (7). This can be seen in the following pair, where the definite article has been exchanged for the distal demonstrative *that*:

(8) That manager is angry.

(9) #That mother of every child is angry.[15]

The above substitution instance involves the article being exchanged for an expression almost univocally accepted to produce a singular term.[16] In (8) the utterance would have the same communicative effect as that in (6), it still makes reference to a particular individual, whereas in (9) the demonstrative forces a reading that jars with the grammar of the rest of the phrase (captured in the presence of the quantifier). We thereby have a clear ambiguity between (6) and (7), and an equally clear grammatical difference between the two definite descriptions.

The observation made about (8) and (9) illustrate that certain grammatical configurations for definite descriptions are amenable to referential uses, and thereby to the article being substituted for an alternative referential determiner, whereas other configurations are amenable to attributive uses, and fail to retain communicative efficacy in the substitution instance. Interestingly, the differences between (6/8) and (7/9) tally with intuitions raised in the descriptions literature in defence of semantic ambiguity theses. Typically, (6) will be used to generate an act of deictic reference. A speech-act such as this interacts with out 'deictic frame' in order to refer. It is therefore unsurprising that the article in (6) can be exchanged for an inherently deictic demonstrative. Examples such as these abound in defence of a referential semantics for descriptions as in (6).

We will see in §4 that deictic definite descriptions, and there corresponding similarities with distal demonstratives, are often raised as the foremost

[15] We precede sentence (9) with a hash to signify that the intended attributive reading is highly marked. An alternative reading may be rescued if the context were to provide us with the information that the group of children all share the same mother. In this case, however, we lose the intended reading from (7).

[16] King is one of the exceptions to this. For King, complex demonstratives should be understood as quantificational expressions (2001).

evidence of a semantic ambiguity. The close-knit relationship between the two may be seen as evidence that referential descriptions are semantically derived from distal demonstratives, in virtue of possible cohesive semantics. At the other end of the debate, those that deny the existence of a semantic ambiguity often do so in virtue of the substitution failure in (7/9) (see §3). A rejection of the semantic ambiguity is thus founded on the fact that definite articles often cannot be substituted for deictic demonstratives, and hence their semantics registers closer to quantifiers. A third and final analysis, which is rarely explored, is that the semantic results observed in both (6/8) and (7/9) is a direct result of the grammar of determiner phrases (DPs). It is precisely this avenue that we will develop in §6.1. The GAP1 therefore provides a route into a comparative grammatical analysis of the varying configurations that definite descriptions are enabled as DPs.

Moving on, we can repeat the GAP2 as follows:

(GAP2) Take two grammatically distinct expressions ζ and ζ' each of which contains the same definite description *d*, is it possible that ζ forces *d* to have a referential semantics and ζ' forces *d* to have a quantificational semantics purely in virtue of the grammatical environment in which *d* falls?

The following pair of sentences should illustrate the GAP2:

(10) The manager is angry.

(11) I want to be the manager.

The ambiguity can be set up as follows, a felicitous use of (10) will refer to a particular individual that is salient in the context or ensuing discourse, whereas there need not be any salient individual present for (11) to be felicitous. The first sentence states of a particular individual that she is angry, whereas the second sentence states that the speaker has a desire to become the manager but not that they wish to be the individual who is at the time of utterance the actual manager. Therefore, at least one felicitous use of (10) is referential, whereas at least one felicitous use of (11) is attributive.

In the GAP2, the ambiguity is formed not through the definite descriptions themselves (which are identical), but instead through the larger

grammatical environment that the definite description falls within. We can once again illustrate the ambiguity through a substitution instance:

(12) That manager is angry.

(13) I want to be that manager.

We can see that (12) retains the communicative intention exhibited in the referential use, whereas it becomes much harder to get the attributive reading for (13). Instead, (13) appears to force there to be a particular salient manager. The difference is therefore one concerning the overarching grammatical environment in which *the manager* falls. In (12) it is acting as the grammatical subject, whereas in (13) it is the grammatical object and is c-commanded by a propositional attitude verb.[17] The ambiguity is thus set up within the sentential clause as a whole, as opposed to the DPs' internal grammar. It is the GAP2 that provides us with an incentive for investigating the interaction of DPs with wider aspects of a clauses grammar (§6.1).

In conclusion, the two GAPs are added to the CAP to establish the three ambiguity problems that require solutions within any adequate theory of descriptions. Through distinguishing the three it will be possible to understand the extent to which the Russellian theory (§3) and the two ambiguity theories (§4) deal with the problems. Through isolating potential grammatical differences in the two uses for definite descriptions we can begin to explore a third route (§5 and §6) that develops a grammatical grounding for semantic ambiguity in definite descriptions. The aim of this thesis is to provide a novel account of CAP, GAP1, and GAP2, which places grammar at the heart of the semantics of definite descriptions (§6.4).

[17] Radford informally defines c-command as "a structural relation between two constituents. To say that one constituent X c-commands another constituent Y is (informally) to say that X is no lower than Y in the structure (i.e. either X is higher up in the structure than Y, or the two are at the same height)… a constituent X c-commands its sister constituent Y and any constituent Z that is contained within Y" (2004, 440). The term 'structure' simply refers to syntactic structure and height refers to positions within syntactic trees that are employed to illustrate syntactic derivations.

1.4

THE GENESIS OF THE AMBIGUITY PROBLEMS

The most prominent theories of descriptions appear to have adopted the proposition expressed in (5*vi*), which states that the ambiguity is not grammatical. There are a number of reasons that can be put forward to explain this. The first is that the ambiguity problem, as originally raised, concerns a single sentence being employed differently across contexts. In virtue of this it is difficult to suppose that grammar is responsible. Furthermore, within philosophy of language grammar has often been understood as ancillary to questions concerning meaning, simply acting as a way of dressing language up as opposed to being productive in compositional semantics (we will explore the semantic tradition responsible for this view in §2). It will be the job of the following thesis to break with this tradition and argue for a new role for grammar at the heart of compositional semantics (§5.3), acting as a 'skeleton of thought' (Hinzen 2009a). Another reason for side-lining grammar spills from a lexicocentric conception of meaning in the literature. The descriptions literature often understands the meaning of the definite article to be something that the associated lexical item carries. In contrast, we will take the meaning of the article to be 'exo-skeletal' (a term drawn from Borer 2005, 15). An exo-skeletal view of the definite article rejects the idea that its meaning is carried by its lexical entry and instead claims that it is derived through the grammar of DPs and the grammatical environments in which they fall (§6.12). Therefore, it will be facts about grammar that we take to be the genesis of the ambiguity problems.

We can now turn to briefly summarize four theories on the genesis of the ambiguity problem. The first three, the ambiguity thesis (AT), the referential thesis (RT), and the quantificational thesis (QT), traditionally adhere to (5*iv*) together with a lexicocentric conception of meaning. The AT states that the ambiguity has its genesis in the semantics of the definite article:

(AT) The Semantic Ambiguity Thesis

> Take an expression ζ containing a definite description d, the semantic content of ζ in some contexts contains a referential

function and in others is a quantificational function (Strawson 1950; Devitt 1974; 1981a; 1981b; 2004; 2007a; 2007b; Kaplan 1970; 1979a; 1989a; 1989b; 2005; Wettstein 1981; 1983; Reimer 1998; Amaral 2008).

The dual function is thus part of the definite article's linguistic meaning. We will explore two ATs in §4. The RT and QT each state that the ambiguity has its genesis in pragmatics:

(RT) The Referential Semantics Thesis

Take an expression ζ containing a definite description *d*, the semantic content of *d* always elicits a referential function but in some contexts a speaker may succeed in communicating a quantificational statement in using ζ through pragmatic machinery (Frege 1948; von Fintal 2004; Elbourne 2013).

(QT) The Quantificational Semantics Thesis

Given an expression ζ containing a definite description *d*, ζ always expresses a quantificational statement but a speaker may succeed in *communicating* a referential statement in using ζ through pragmatic machinery (Russell 1905; Kripke 1977; 2005; Neale 1990; 2004; 2005a; Salmon 1993; 2004; Bach 2004a; 2004b; 2007).

Of these two theories we will only discuss the QT (§3), which defends the view that the linguistic meaning of the definite article is always quantificational. The terms 'linguistic meaning' and 'pragmatic machinery' will be unpacked in §2, and will be employed throughout the rest of the thesis.

It should be clear at this point that the positive thesis to be advocated in this thesis is at odds with the above strategies. In brief, we will argue that the grammatical 'topology' of DPs produces a 'hierarchy of reference', which captures a range of 'forms of reference' that arguments can exhibit, from weak predicative and quantificational forms on one side, to strong rigid, deictic, and pronominal forms on the other (this idea will be developed in line with work in Longobardi 1994; 2005; Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014). It will be observed that definite descriptions fall in the middle of this hierarchy, thereby enabling the two uses, referential and attributive uses. In conjunction with this, we will

argue that what form of reference a definite description exhibits is partially determined by the grammatical configuration it is placed within, including how it is valued with respect to 'speech-event features' (the idea of speech-event features will be advanced in line with Sigurðsson 2004a; 2004b; 2009). The ambiguity problems will thus be explained as originating in grammar. We will call this the 'grammatical thesis' (GT):

(GT) The Grammatical Thesis

> Take an expression ζ containing a definite description *d*, the grammatical structure of *d*'s DP, together with the grammatical environment of ζ in which *d* falls, will determine the strength and form of reference that *d* exhibits.

The GT thus rejects a lexicocentric view of the semantics of the definite article, and it rejects the view that the genesis of the ambiguity is to be found in pure semantics or pragmatics. In conjunction with the above, the GT will judge grammar to be an aspect of our species 'biological endowment', and our theory will thus be considered a naturalistic and explanatory account of compositional semantics.[18] We will therefore consider our theory of descriptions as one embedded in the faculty of language (§5).

[18] The thesis is made in line with an on-going discussion in biolinguistics (Uriagereka 1998; Piatelli-Palmarini, Uriagereka, and Salaburu 2009; Di Sciullo & Boeckx 2011). A secondary hope is that the thesis can be understood as contributing to the research program of biolinguistics.

2

THE SEMANTIC FRAMEWORK

The descriptions literature is founded upon semantic theories sketched out in the latter part of the 19th and early 20th century. It is within these theories that we observe the emergence of a framework for a formal compositional semantics of natural language. Furthermore, the framework developed incorporated a formal analysis of reference, quantification, predication, and truth. The development of formal semantics became central to the various philosophical solutions provided for the three ambiguity problems detailed in §1. In what follows, we will provide an exposition of a type-based formal semantics and pay close attention to the 'forms of reference' it enables for arguments. It will be observed that a type-based system is committed to a lexicocentric view of meaning, and that this negatively impacts the forms of reference it permits.[19] We will refer to this lexicocentric restriction on forms of reference when we come to reject the Russellian theory (QT) in §3 and two ambiguity theories (AT) in §4, before providing a non-lexicocentric alternative, with expanded set of forms of reference, in §5 and §6.

[19] A lexicocentric position defends the view that the semantic contribution of a word can be given in isolation from considerations of the wider grammatical environment in which it is placed.

The semantic framework will be developed as follows. In §2.1 we will describe the semantic terrain that theories of descriptions fall within, which can be understood as founded upon a dispute between literalism and contextualism over the establishment of truth-conditional content. Following this, in §2.2 we will give a detailed exposition of formal compositional semantics, including an analysis of logical form, intensions and extensions, and structured propositions. Through this we will be able to understand the semantic apparatus available to the descriptions literature in explaining truth-conditional content. Next, in §2.3 we turn to look at how the formal system interacts with pragmatic machinery in effective communication, which will help us understand how such a system can be employed to explain actual language use. Finally, in §2.4 we will describe the forms of reference that are enabled within formal semantics, which we will label restrictive and will later reject on the basis that they fail to capture the expansive variation available in natural language reference.

2.1

THE SEMANTIC TERRAIN

The semantic framework that is employed in the descriptions literature is built upon a question concerning "the role of context in the determination of truth-conditions" (Recanati 2004, 83). The concept of 'truth-conditions' and how they are established is thus central to the semantic framework and the theories of meaning it enables.[20] The guiding intuition behind this is that in order to be a competent speaker of a language one must be able to understand and interpret the truth-conditions of sentences of the language, '[t]o know the meaning of a sentence is to know its truth conditions' (Heim & Kratzer 1998, 1). Recanati derives the semantic terrain through a debate concerning the role of linguistic meaning in the determination of truth-conditional content. We will follow the catalogue that he offers.

In preparation for the rest of the thesis we must now introduce some central terminology that is used in order to classify semantic theories. The first piece of terminology that we will introduce is that of 'what is said' in using a particular expression. According to Recanati, given an expression ζ,

[20] Even this claim comes with issues. For instance, debates exist as to whether meaning determines truth or the other way round. For more on this, see Pietroski (2005a; 2005b).

what a speaker 'says' in using ζ is to be associated with the truth-conditional content expressed by ζ, 'what is said' is the truth-conditional content of the utterance (2004, 5), and in Hinzen's words "it is to take such propositions to form the contents of propositional attitudes; and to take them to be 'complete' in the sense that a truth-value can be attached to them in a context of use" (*forthcoming*, 4). The question that is important in distinguishing semantic theories is what is involved in establishing 'what is said'? In other words, what is the minimum level of machinery (grammatical, semantic, pragmatic, etc.) that is necessary for an utterance to have a propositional content and specified set of truth-conditions?

We can delineate the semantic terrain through the distinction between literalism and contextualism. The two positions are formed over a dispute concerning whether 'what is said' is more closely related to the 'linguistic meaning' of an expression or whether the 'linguistic meaning' must be supplemented by pragmatic mechanisms in order to determine what is said (mechanism including, for instance, 'speaker's meaning').[21] Let us quickly define these terms. The linguistic meaning of an expression is derived from the conventional meaning associated with a given expression-type. The linguistic meaning of a token expression ζ is derived from the meaning of the expression-type ζ. In virtue of this, the linguistic meaning of a particular expression can be given in isolation from a particular context of use, linguistic meaning is thus context-independent. The linguistic meaning of an expression does not change across token instances of its use. It is for such reasons that the term 'linguistic meaning' is often used interchangeably with 'literal meaning' (Recanati 2004, 5). To take an example, consider (1):

(1) I am tired.

The linguistic meaning associated with (1) is the conventional meaning associated with the sentence-type expressed in (1). It might be paraphrased as 'the speaker is tired'. The linguistic meaning of (1) can thereby be given without reference to who uttered it and when it was uttered. It can be given independently of context.

[21] The term 'linguistic meaning' is often used interchangeably with the terms 'sentence meaning', 'literal meaning', and 'conventional meaning'. We will attempt to stick to the term 'linguistic meaning' throughout this thesis.

Conversely, the 'speaker's meaning' of an expression ζ has to do with what the speaker can succeed in communicating/implicating in using ζ (2004, 5). For instance, given two separate contexts a speaker who utters (1) may in one context succeed in communicating that they desire a cup of coffee and in another context that they wish to avoid a social engagement. These two extra-linguistic pieces of information would be part of speaker's meaning, they would be part of what the speaker meant in using (1). Nevertheless, it is understood that these extra-linguistic pieces of communication are not present in (1)'s linguistic meaning. Typically understood speaker's meaning involves the enrichment of linguistic meaning through what we are calling 'pragmatic machinery'.

According to Recanati, we get a triad of stages within a given speech act (2004, 5), which we can put as follows:

(2) 'Sentence Meaning' < 'What is said' < 'What is implicated'

The first of the three is entirely constituted by the linguistic meaning and the last of the three is entirely constituted by speaker's meaning. The question is then, which side does 'what is said' fall? In other words, at which point do we have a full propositional structure with a fully specified set of truth-conditions. At this stage it is useful to make one further differentiation between 'what is said' and 'what is implicated'. Given a particular speech act *S*, 'what is said' in *S* will be constrained by the linguistic meaning of the expression used in *S*. For instance, the proposition(s) expressed in a sentence such as (1) cannot include the proposition that *spiders have eight legs*. The linguistic meaning of (1) precludes the proposition *spiders have eight legs* being part of 'what is said'. Conversely, as Recanati points out, given a set of strong contextual and background assumptions, or 'stage-setting', it is possible that 'what is implicated' by (1) includes the proposition *spiders have eight legs*. We should think of linguistic meaning as providing an utterance with a 'semantic skeleton', which in turn limits 'what is said' in such an utterance (2004, 6). The question remains as to whether the semantic skeleton provided by the linguistic meaning is sufficient to account for 'what is said'.

At this point we can provide two distinct answers to this question, one from literalism and one from contextualism. We will now define the two

positions following Recanati's categorization of semantics theories. Let us begin with literalism:

(L) Literalism

> The truth-conditions of a sentence are fixed by the rules of the language (with respect to context) quite independently of the speaker's meaning. (2004, 85)[22]

To defend literalism one must state that there is at least a minimal proposition provided by the linguistic meaning of an expression, which can be formulated without any input from the speaker's meaning associated with its use. According to semantic minimalism, a particular form of literalism, semantics should be purely concerned with literal meaning alone. As Borg puts it, "[r]ecognizing a clear boundary between literal meaning and communication, and maintaining that a semantic theory owes us an explanation of the former but not the latter, would then be an instance of minimalism" (Borg 2004, 54). For minimalism, the position is that we can provide a minimal proposition for any sentence of a language through that sentence's linguistic meaning. The 'semantic skeleton' that is provided by linguistic meaning is therefore sufficient, if literalism is correct, to produce propositional content. The theory is stated to "adopt a quite stripped down, or minimal, conception of the aims and limits of a semantic theory" (Borg 2004, 17).[23] Recanati thus understands literalism as splitting the triad in (2) up as follows:

(L*) Linguistic Meaning → {Sentence Meaning, 'What is said'}

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[22] Following this, Recanati outlines two further theories that fall under the rubric of literalism, which he terms the syncretic view and indexicalism. The two theories are said to be weaker forms of literalism in virtue of that fact that they "appeal to the speaker's meaning in determining truth-conditions, but… *only when the sentence itself demands it*" (2004, 85; Åkerman 2009, 155). The syncretic view claims that "what is said, in the intuitive sense, may be affected by primary pragmatic processes of the optional variety; but it draws a distinction between what is said in the intuitive sense (the input to secondary pragmatic processes), and what is strictly and literally said" (2004, 85; see also Salmon 1991; Bach 1994a; 1994b; Soames 2002). And, indexicalism states that "no contextual influences are allowed to affect the intuitive truth-conditional content of an utterance unless the sentence itself demands it" (2004, 85). We might term the first form of literalism *brute* literalism in order to distinguish it from the two further views. The core point of agreement between the three versions is that it is only when absolutely necessary can we incorporate something contextual into what is said (Recanati 1993, 255).

[23] For a further defence of minimalism see Cappellan & Lepore (1997; 2005) and for a response against such forms of minimalism see Travis (2006).

Speaker's Meaning → {'What is implicated'}

The linguistic meaning accounts for the sentence meaning and what is said, whereas speaker's meaning only plays a role in what is implicated.

The second position is termed contextualism. We can define contextualism as follows:

(C) Contextualism

> There is no level of meaning which is both (*i*) propositional (truth-evaluable) and (*ii*) minimalist, that is, unaffected by top-down factors. (2004, 90)

According to contextualism, there is no way in which the linguistic meaning (context-independent literal meaning) of an expression can provide that expression with a fully-specified set of truth-conditions (or, in fact, even a minimal proposition). Contextualism thus claims that one cannot hold that an expression is fully propositional at the same time as being wholly divorced from 'top-down' pragmatic factors. To clarify, if a 'factor' of meaning is taken to be top-down, then it is "external and additional to what is said", whereas if it is bottom-up, then it is "a process triggered (and made obligatory) by a linguistic expression in the sentence itself" (2004, 18). For contextualism then, the 'semantic skeleton' provided by linguistic meaning requires "contextual enrichment or 'fleshing out'" in order to be propositional (2004, 6). Once again making use of the diagrams that Recanati uses we can state that contextualism splits the triad up as follows:

(C*) Linguistic Meaning → {Sentence Meaning}

Speaker's Meaning → {'What is said', 'What is implicated'}

The view defended here is that 'what is said', namely the truth-conditional content of an utterance, is first constrained by linguistic meaning but then enriched by context (in ways not necessarily demanded by the linguistic meaning). We therefore have the core difference between literalism and contextualism. Literalism defends the view that linguistic meaning alone fully specifies 'what is said', and contextualism defends the view that the linguistic meaning requires contextual enrichment in order to reach the level of 'what is said'.

It is noteworthy that there is no mention of grammar in the organisation of either linguistic meaning or speaker's meaning. In terms of how grammar is traditionally understood in the philosophical tradition this omission is easily rectified. The role of grammar is to help construct linguistic meaning in a manner that reflects the underlying thought that the speaker is aiming to express. In other words, it is merely the 'clothing for the semantic skeleton'.[24] It plays no further role. However, this view of grammar is arguably misled. At the very least, grammar can be seen as organizing the 'skeletal' aspects of meaning, and therefore as organizing linguistic meaning. In fact, in §5 we will argue that not only does grammar produce linguistic meaning but it takes us to the level of 'what is said' without recourse to either minimal propositions or contextual enrichment. It will be illustrated that grammar is richer than previously thought and contains syntactic projections dedicated to placing clausal structure within a 'speech-event' frame, which fully specifies 'what is said' (in the sense of Sigurðsson 2004b; 2009).

2.2

FORMAL SEMANTICS

An account of how the linguistic meaning of an utterance is derived involves providing an account of compositional semantics. Formal semantics is perhaps the most prominent tactic for accounting for compositional aspects of meaning. Its development is closely tied to the core tenets of literalism, and its use is widespread in the descriptions literature. In analysing formal semantics we will understand how and why truth-conditional content is so closely associated with meaning, and this will help us to understand the available options on the table for solving the three ambiguity problems. We will now provide a detailed exposition of how one might develop a formal compositional semantics for natural language.

Natural language is part of our comportment towards the world and others. In virtue of this, it might seem reasonable to suppose that the contextual structure surrounding our utterances has a big impact on what they mean

[24] It is precisely this tradition that is questioned by those such as Hinzen (2009b). The tradition in linguistics does not provide grammar with a more central role either, as can been seen in Chomsky's earlier work (1957; 1966).

and the truth-conditional content that they express. However, in order to construct a semantics for natural language it is important to be decisive over what to consider relevant and what to consider ancillary in the production of meaningful communication. If semantics is to be a rigorous domain, then it must be clear in its aims and methodology. The basis of formal semantics as a discipline can be seen in Russell, "I… am persuaded that common speech is full of vagueness and inaccuracy, and that any attempt to be precise and accurate requires modification of common speech both as regards vocabulary and as regards syntax" (1957, 387).[25] It is worries such as these that led philosophers to search for a more rigorous manner in which to account for meaning and to abstract away from all of the imprecision that surrounds natural language use. The motivation behind formal semantics is that by using formal logic one can avoid misinterpretation of natural language utterances, and can instead provide unambiguous formal expressions. We could say that it is within this field that we see the birth of literalism.

Formal semantics emerged originally as a method through which to translate the natural language used in proofs of mathematics into a language that was devoid of ambiguity (Frege 1879; 1884; 1893; Russell 1903; 1919b; Russell & Whitehead 1910). Frege and Russell both independently attempted to reduce mathematics to logic. For each author, the objective was to rid mathematical proofs of the ambiguities and vague terms that were pervasive in natural language. The objective was achieved through a translation of the natural language sentences present in proofs into formal statements. Each author believed the success of this project was vital for progress in mathematics. Frege, for instance, felt that until the foundations of mathematics were uncovered and settled logically, "the whole structure of arithmetic" would be "defective" (1953, xiv).

The formal language was created to translate steps in proofs, definitions, axioms, and so on. In order to account for these the two authors were

[25] The eradication of common speech vagueness in favour of a new formal vocabulary and syntax is the aim of 'On Denoting' (1905). As Higginbotham notes it was the aim of this work to distinguish what may be termed 'grammatical form', which is the form that a natural language utterances takes, from 'logical form', which is the *actual* meaning of the utterance that is often obscured by the former (1993). The work in 'On Denoting' is seen as a success by many, not least Wittgenstein who states that "[i]t was Russell who performed the service of showing that the apparent logical form of a proposition need not be its real one" (1921, 4.0031).

required to create a formalized language within which any possible statement of a proof could fall (Dummett 1973, 1). In Dummett's words:

> Frege's first task was, thus, to give an analysis of this structure of the sentences of our language, adequate at least for such sentences as occur in a train of mathematical reasoning... it must explain also how the meaning of each sentence was determined from its internal structure… it must be a semantic, and not merely a syntactic, analysis. Frege had, in other words, to provide the foundation of a theory of meaning. (1973, 2)

It is within this project that we begin to see the emergence of formal semantics as a discipline, and consequently the semantic framework used today in theories of descriptions. In its advancement, both Frege and Russell extended the formal treatment to natural language semantics more generally, and the formal project that Frege and Russell initiated has become the standard in twentieth century philosophy of language.[26]

Frege began his project by adhering to the following rule, that "[t]here must be a sharp separation of the psychological from the logical" (1997, 90). The formal semantic system was therefore not to be determined by particular people and their mental states, and it was not to be determined by speakers' intuitions as to what words and parts of speech meant. It is factors such as these that lead to vagueness. Instead, a theory of meaning should be universal in the sense that a given proposition contained within a proof would mean the same thing across varying contexts of use and even in instances where it was differently expressed.[27] The theory should explain the semantics of sentence-types and word-types, not individual token utterances of sentences. Indeed, both Frege and Russell viewed this as the only way to capture the universality of proof. Formal semantics would thus be troubled by the ambiguity problems outlined in §1.1.

Borg outlines the motivation of formal semantics as follows:

> [a]ccording to formal theorists, the point at which to study language is, at least initially, in terms of the formal features of

[26] Indeed, it remains heavily defended (see Larson & Segal 1995; Heim & Kratzer 1998; Portner & Partee 2002; Pietroski 2005a; von Fintel & Heim 2010, each of which provides a framework for formal semantics).

[27] A very simple example of this would be the active sentence *John hit Steve* and the passive sentence *Steve was hit by John*, which likewise express the same proposition.

> linguistic expressions. Thus we can talk about the meanings of words and sentences, where these are items assessed in terms of their formal features, prior to, or abstracted from, questions about the ways in which these expressions are used on a particular occasion or the communicative aims of the speakers who utter the words and sentences in question. (2004, 15)

It is the investigation into these formal features of language and their interactions that provides us with a blueprint or skeleton for composing natural language semantics, a blueprint that can in turn be applied to any novel sentence in any natural language.

2.21

LOGICAL FORM

Central to the formal semantics project is the notion of logical form. The logical form assigned to sentences is an abstraction from those natural language expressions they are meant to capture. Moreover, the project of providing a systematic logical form for natural language semantics can be viewed in two ways, as descriptive or as revisionary (Stanley 2000). In the first case, logical form is simply a method through which we can label semantic inferences. It is *imposed* on natural language (Borg 2004, 63). In the second case, logical form is a real part of natural language that is built up as part of our language faculty. A revisionary view of logical form understands it to be to natural language expressions (Borg 2004, 64). Borg notes that this view is often related to the program of generative grammar introduced by Chomsky that, up until recently, defended the view that logical form was a semantic 'level of representation' present in the faculty of language (Borg 2004, 64; Chomsky 1975; 1995). For the purpose of the present discussion we may leave these considerations alone. Currently, we are only interested in describing the process via which one might construct a logical form, rather than the further claim concerning whether it is a descriptive or explanatory tool in natural language research. We will save the latter question for §5.3.

An important question to ask now is how does a semantic theory ground logical form in the first place? To begin with, at the base of logical form

there exist a minimum of two levels of formal complexity.[28] The first level of complexity is that of the propositional calculus wherein the logic of the connection of propositions is considered. The second level of complexity breaks apart those propositions to investigate their internal logic, which was initiated with first-order logic. These two levels do not exhaust logical form, but they do form an appropriate starting point for our analysis of formal semantics.

The first level of complexity contains propositions themselves as constituents, whereas the second level of complexity has sub-propositional parts as its constituents. These layers are described by Wittgenstein:

> [i]f we try to analyse any given propositions we shall find in general that they are logical sums, products or other truth-functions of simpler propositions. But our analysis, if carried far enough, must come to the point where it reaches propositional forms which are not themselves composed of simpler propositional forms. We must eventually reach the ultimate connection of the terms, the immediate connection which cannot be broken without destroying the propositional form as such. (1929, 162-163)

The two levels of formal complexity were intended to give an analysis of the semantics of any expression of natural language. As it turned out formal semantics had to admit further elements of formal complexity into the mix, but for the time being we will stick to the basics.[29]

We will provide an outline of a type-based formal semantics shortly, but before we do it is important to distinguish logical form from grammatical form, a distinction that is retained in literalism. Consider (3):

(3) John is tall.

We can begin by listing features of (3)'s grammatical form. For instance, it includes a noun, an adjective, and a copula (that expresses present tense).

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[28] These two levels can be seen as being developed in Frege's logic. A brief outline of work on the logical connectives can be found in 'Negation' (1918) and 'Compound Thoughts' (1963), and an insight into how Frege envisioned the internal formal structure of propositions can be seen in 'On Sense and Reference' (1948) and 'On Concept and Object' (1951).

[29] The advancements can be seen in Davidson (1967) and alternatively in the Model-theoretic view of Kaplan (1979b).

The adjective and copula combine to provide an intransitive verb phrase, which in turn combines with the noun phrase that acts as the sentence's grammatical subject or thematic agent. Finally, the grammatical form so construed provides a declarative sentence. On the other hand, logical form does not employ such terminology. Instead, it treats grammar as an ancillary part of language, grammar is merely a tool for 'expressing' a pre-existing logical form. Establishing the logical form is a strictly semantic enterprise.

The question remains as to what exactly the difference is between the grammatical form of natural language and the logical form of semantics that lurks beneath it. Typically, formal semantics makes the claim that the grammatical form of a sentence does not run parallel to the structure of semantic information. The idea here is that given two identical grammatical forms it is possible to construct two distinct semantic forms, and vice versa. According to Higginbotham, this idea is pervasive in the semantics literature (1993, 174). The central facet to the lack of synonymy between the two forms emerges from the fact that:

> [l]inguistic structure is a matter… of what licenses certain combinations of words and other formatives as constituting a sentence of a language. But the concern of logical form is with the recursive structure of reference and truth. In distinguishing logical form from grammatical form we post a warning against the easy assumption that the referents of the significant parts of a sentence, in the ways they are composed so as to determine truth conditions, line up neatly with the words, in the ways they are composed so as to make the whole well-formed. (1993, 1973-1974)[30]

Logical form therefore deals with 'the recursive structure of reference and truth', which is charged with failing to necessarily run parallel to grammatical form. Let us unpack these claims further.

The mechanism of recursion is a simple one and runs as follows. Given a set containing two members α and β, written $\{\alpha, \beta\}$, we can label that set as

[30] This account is not without its detractors. For instance, Hinzen (2007) makes a substantive claim that not only is grammatical form recursive, but is in actual fact central to the construction of reference and truth. Reference, for instance, is a property that is "systematically conditioned syntactically" within DPs and truth is a property of an expression's 'force' "encoded in the upper regions of the CP layer" (2007, 165; 204).

being of either type α or type β. Further to this, we can add another element γ yielding the set $\{\gamma, \{\alpha, \beta\}\}$, which will be of either type γ or whatever type was assigned to $\{\alpha, \beta\}$. This system can continue *ad infinitum* as more elements are added. According to Higginbotham, the system is one that operates on formal representations, which are intended to stand for the referential and truth-bearing elements of language (1993, 174). Consequently, as a recursive structure is derived it represents the concatenation of reference and truth.

We can now turn to consider how logical form recursively derives truth and reference. The logical form assigned to a sentential expression constructs a proposition. A proposition is something that is truth-evaluable relative to a particular world *w* of evaluation (at a minimum). The logical form a proposition captures will detail the conditions under which that proposition is true, its truth-conditions. The truth-conditions of a sentence will mirror a state-of-affairs such that if that state of affairs holds in *w* then the proposition expressed is true in *w*, and if this state-of-affairs does not hold in *w* then the proposition expressed is false in *w*. Therefore, the locus of truth is the sentence. The truth-conditions of atomic propositions are built up from parts that are not themselves truth-evaluable, for instance those parts of sentences including names, articles, quantifiers, verbs, adjectives, and so on. Therefore, the logical form of a proposition is a systematic construction of truth-conditions from non-truth-evaluable parts. This means that the logical form of a proposition is a composition of its parts. The centrality of truth to formal semantics is clear. As Heim & Kratzer state, "[t]o know the meaning of a sentence is to know its truth conditions" (1998, 1), to know how the truth-conditions are constructed is to know how to analyse the compositional contribution of words and parts of speech to truth-conditional meaning.

In order to construct logical form and provide a recursive account of reference and truth one can assign propositions and their parts semantic-types, thereby creating a type-based semantics. Type-based semantics is a brand of compositional semantics that takes non-truth evaluable parts and produces a construction that is truth evaluable, namely a proposition. At the outset the task involves breaking apart linguistic expressions and detailing the types of words and phrases that go to make them up. This work involves detecting regularities amongst such phrases or words.

Following this, one can then give the logical contribution of different types of phrases to any proposition they are found in. For instance, we can, following tradition (Montague 1973, 22-23; Heim & Kratzer 1998, 28; Partee 2000, 1), assign a sentence the semantic-type <t> standing for 'truth-value', and a referential term the semantic-type <e> standing for an 'individual' (Frege 1951, 171-173). From these base types we can develop a semantic-type for any part of a proposition. This is indeed what it means to say that logical form deals with the recursive features of reference and truth.

The two base types, <e> and <t>, can be used to assign any expression a semantic-type. For instance, if <e> and <t> are legitimate semantic-types then so is the type, or ordered pair, formed of the two, <e, t>. The ordered pair <e, t> does not behave like those types of <e> and <t> as it stands for a function, rather than a truth-value or individual. The function <e, t> states that if you give to it an individual of type <e>, then it will give you a proposition of type <t>. It is this asymmetry between functions and individuals that characterizes traditional compositional semantics. An obvious candidate part of a sentence for the type <e, t> would be a verbal phrase (for instance *is tall*). The verbal phrase *is tall* has the semantic-type of a function, which stands for a class (the class of tall things). The verbal phrase *is tall* can take a name, for example *John*, and give us a proposition whose truth-value is 'true' if John is in the class of tall things and 'false' if otherwise. Whilst the output of a proposition is of type <t>, in order to account for the internal logic of a proposition we must have a way of composing the semantic types that correspond to the parts of the proposition that are not of type <t>. Functions play this role of composition.[31] Thus, a compositional formal semantics is born.

The idea of functional compositionality comes from Frege, who stated that within any given sentence there will be a dichotomy between those parts of speech that are in some sense 'complete' and those that are 'incomplete' or 'unsaturated'. The base semantic-types <e> and <t> are complete, whereas complexes/functions such as the semantic type <e, t> are not. All non-base

[31] The formal semantics under discussion here is called functionalism and is one of the more prominent formal semantic theories, however it is not the only available option. For instance, Pietroski (2005a) develops a contrasting formal system that he terms conjunctivism, which takes all elements involved in the formalism to be monadic predicates, which are tied together using a standard conjunction operation.

semantic-types act as unsaturated functions and therefore require completion/saturation. In Frege's words:

> Statements in general… can be imagined to be split up into two parts; one complete in itself, and the other in need of supplementation, or 'unsaturated.' Thus, e.g., we split up the sentence
>
> 'Caesar conquered Gaul'
>
> into 'Caesar' and 'conquered Gaul'. The second part is 'unsaturated' – it contains an empty place; only when this place is filled up with a proper name, or with an expression that replaces a proper name, does a complete sense appear. (1891, 139)

The notion of saturation matches that of functional composition. It is through this method that the formal semantic system can build up a proposition of type <t> from non-propositional parts.

For clarity, let us analyse the sentence *Caesar conquered Gaul*, which we can break down into its constituent parts. To begin with we have the sentence as a whole, which is of the semantic type <t>. The sentence's logical form expresses a proposition with a determinate set of truth-conditions. We can then extract the subject *Caesar* from the sentence, which is of type <e> standing for an individual. Once the subject is extracted we are left with a one-place predicate, or function, *conquered Gaul*, which is of type <e, t>. Finally, we can break apart this one-place predicate to get the sentence's object *Gaul* (again of type <e>) and the two-place function *conquered* of type <e, <e, t>>. The original sentence can therefore be understood as being derived as follows:

(4) [x] conquered [y] (Gaul) (Caesar)
[x] conquered [Gaul] (Caesar)
[Caesar] conquered [Gaul]

In (4) we have two instances of saturation. The verb *conquered* is dyadic. The first step reduces the adicity of *conquered* by one to a monadic predicate and the second step gives us a proposition. A part of speech is said to be complete if it contains no empty spaces. Therefore, both the dyadic predicate *conquered* and the monadic predicate *conquered Gaul* are incomplete, whereas none of *Gaul*, *Caesar*, and *Caesar conquered Gaul* are.

Through the idea of functional composition a theory of meaning for natural language is born. Importantly, the theory of meaning should apply to all languages. It should be universal. Using a typed semantics we can give a sentence such as *John is tall* the following analysis:

(5) *i.* *John* has the semantic-type <e>.

ii. *is tall* has the semantic-type <e, t>.

iii. Applying *John* <e> to *is tall* <e, t> gives us *John is tall*, which has the semantic-type <t>.

Finally, applying a T-schema to the resultant sentence we get the truth conditions:

iv. 'John is tall' is true iff John is tall.

We therefore specify the semantic-types of the words and their composition to enable a formal account of a natural language utterance. It is worthwhile noting that the semantic-types are properties of the lexical items themselves, thereby enabling their composition and subsequent contribution to truth-conditional content as part of a semantic derivation. It for this reason that we label type-based semantics lexicocentric.

Following Heim & Kratzer, we can make functional composition explicit by replacing the semantic-types with a formalism that captures them in a transparent manner (using a lambda term to stand for a function).

(6) John is tall.
'λx. x is tall(John)' is true iff x is tall.
'John is tall' is true iff John is tall.[32]

The above is meant to capture one way of constructing a formal compositional semantics. Whilst it is true that we have only mentioned a basic sentence, the intuition is that by using this system we can account for any well-formed sentential utterance found within natural language. For any word or part of speech we can provide a semantic-type, and for any well-formed utterance we can provide a compositional derivation of the semantic-types involved. Thus, the semantic-types together with their

[32] The sentence is indicated through 'quotation marks', the arguments to be used in saturation are indicated in (standard brackets), and the truth clause follows the sentence.

modes of composition provide us with a way of accounting for the meaning of any novel utterance; a skeletal blueprint for linguistic meaning and truth-conditional content.

2.22

INTENSIONS AND EXTENSIONS

In our exposition of logical form we mentioned base semantic-types used in the construction of a function based compositional theory of meaning. We stated that the semantic-type <e> stands for an individual, that the type <t> stands for a truth-value, and that the type <e, t> stands for a class. What we are talking about here are candidates for the extensions of the semantic-types. The extension of a word or part of speech is what it denotes.[33] In addition to having an extension, each word or part of speech has an intension. Traditionally defined, the intension of a part of speech is its meaning. The two are distinct in that the meaning of a part of speech determines what it denotes, but the meaning is not in turn identical with the denotation.[34] For any word we can assign it a semantic-type, which dictates the form of its intension and extension, its meaning, and what it denotes. Kaplan calls the development of this system the 'golden age of pure semantics', and states that its beauty came in the fact that it was concerned with a "nice homogenous theory, with language, meaning, and entities of the world each properly segregated and related one to another in rather smooth and comfortable ways" (1970, 214).[35]

The derivational dynamics of formal semantics is such that the intension of a sentence is determined by the intensions of its parts, and that the extension of a sentence is determined by the extensions of its parts.[36] The

[33] We will use the term 'denote' to stand for the relationship between parts of speech and their extensions, and reserve the term 'refer' for the 'forms of reference' we outline in §2.4.

[34] In §4.1 we will look at direct reference theory, which interestingly argues that the intension of a type <e> expression is identical with its extension.

[35] For Kaplan, the golden age of pure semantics was epitomized in Carnap's *Meaning and Necessity* (1947), which distinguished three types of expression: sentences, individual expressions (names, individual descriptions), and predicates (1947, 1). Carnap provided intensions and extensions for each type of expression, and the tripartite distinction he provided was central to the development of formal semantics.

[36] Dummett holds that the slogan 'the sentence is the unit of meaning' is either a truism or non-sensical, and claims that Frege was "unwaveringly insistent that the sense of a sentence – or any complex expression – is made up out of the senses of its constituent words" (1973,

intension of a sentence is a proposition which has a determinate set of truth-conditions.[37] The extension of a sentence is a truth-value, which is determined by the extensions of its parts in conjunction with the truth-conditions. For instance, consider the two sentences in (7) and (8):

(7) Ronaldo is tall.

(8) Messi is tall.

The two sentences pick out distinct sets of truth-conditions, and consequently the truth-schema for each is distinct:

(7*) 'Ronaldo is tall' is true iff Ronaldo is tall.

(8*) 'Messi is tall' is true iff Messi is tall.

The reason for this distinctness is obvious. In the (7-7*) examples the subject has the intension of an individual concept RONALDO and the extension of the actual individual Ronaldo, whereas in the (8-8*) example the subject has the intension of the individual concept MESSI and the extension of the actual individual Messi. The distinct subjects alter the truth-conditional content of each sentence. The two sentences have the same compositional structure, but the lexical items employed as the subjects pick out different individuals through the intension of each denoting a distinct extension. It is the interplay between intensions and extensions that determines the truth-conditional content and resultant truth-values of the respective sentential expressions (Dummett 1973, 2).

Natural language use is interlaced with our ability to make judgements regarding the truth or falsity of utterances. The ability to engage with questions of truth, to judge sentences as truths and falsehoods, is perhaps the defining property of our species as a linguistic animal. The role of logical form in composing the intensions of a sentence, a proposition, is what a formal semantics is aiming for in stating that to 'know the meaning of a sentence is to know its truth conditions'. When we investigate the

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4). In a derivational semantics such as functionalism we can speak of the words or parts of speech as being meaningful prior to their composition in a sentential derivation.

[37] The intension of a word or part of speech is precisely that which contributes to truth-conditional content, and hence can affect the proposition's truth or falsity (Dummett 1973, 2). Any other interpretation of a word or phrase that does not help establish truth conditions is therefore part of the term's 'tone'.

truth-conditions of a sentence we judge it to be true or false, and at this point, "no matter how trivial, the step from the level of thoughts to the level of referents has already been taken" (1948, 216; 1956, 294). In judging a sentence to be true we move from intensions, the truth-conditional content, to extensions, the relevant parts of the world that the intensions denote. The semantic theory we are tracing therefore states that it is the derivational dynamics of a type-based semantics together with intensions/extensions that enables our utterances to be judged for truth.

2.23

STRUCTURED PROPOSITIONS

The formal semantics described thus far can be seen as producing 'structured propositions' at the clause level of a semantic derivation.[38] A structured proposition is a complex of non-propositional parts, which are its constituents (Russell 1919a, 2). A distinction can be made between two types of structured proposition, singular propositions and general propositions. Singular propositions are object-dependent, which means that their truth depends upon a particular individual. General propositions are object-independent, which means that their truth is not determined with reference to a particular individual.

The type of structured proposition a derivation constructs is dependent upon its constituents and its compositional form.[39] A singular proposition is a proposition whose subject is of the semantic-type <e>. In (7) the name *Ronaldo* is of type <e> and hence the truth-value of *Ronaldo is tall* depends upon the particular individual Ronaldo. General propositions differ from singular ones in that they are not about a particular individual. The subject of a general proposition is not of type <e> but is instead quantificational:

(9) Someone is tall.

[38] At this point we should mention that it is equally legitimate to take the intension of a sentential utterance as picking out a set of possible worlds, with the extension (truth-value) being determined relative to the world of evaluation. For the purposes of this exposition we will keep within the confines of structured propositions.

[39] It is worth noting that propositions are unities that go beyond a simple enumeration of their constituents (Russell 1903, 51). Russell states that "two facts [propositions] are said to have the same "form" when they differ only as regards their constituents" (1919a, 2). Thus (7) and (8) above have the same form but not the same constituents.

An utterance of (9) picks out a general proposition. Its truth is not dependent upon a particular individual. Instead, it is true just in the case that there exists one individual who is tall. The reason for this is that the subject is a quantifier phrase, which is not of type <e>.

Frege describes general propositions as follows:

> [t]he words 'all', 'any', 'no', 'some' are prefixed to concept words. In universal and particular affirmative and genitive sentences, we are expressing relations between concepts; we use these words to indicate the special kind of relation. They are thus, logically speaking, not to be more closely associated with the concept-words that follow them, but are to be related to the sentence as a whole. (1951, 173)

The point being made is that the quantifier *some* in (9) is a relation that holds between the two predicates 'being an animate object' and 'being tall'. The relation thus stretches across the sentence.

The logical subject of (9) is not picking out a particular individual and cannot have the semantic-type <e>. We therefore need to invent a further semantic-type for quantifiers including *some*. The semantic-type must represent a general proposition and the idea that quantifiers are related to the sentence as a whole. In virtue of the quantifier *some* in (9) being a relation between two predicates we can assign it the semantic-type <<e, t>, <<e, t>, t>>, and a quantifier phrase *someone* the type <<e, t>, t> (Heim & Kratzer 1998, 146). The quantifier's semantic-type thus holds all of the positions needed for the two predicates contained within the sentence, and once those positions are filled we receive the type <t>. The distinction between a quantifier and a referential term's semantic-type is that the former contains no base type <e>. Wherever <e> occurs it is part of a complex, an ordered pair. We therefore have a dichotomy between type <e> expressions (*Ronaldo*, *Messi*, *she*, *he*, *I*, *you*) and type <<e, t>, <<e, t>, t>> expressions (*some*, *every*, *all*, *many*, *few*, *most*, *least*). We will argue in §5.342 and §6.1 that the semantic-type dichotomy severely limits our ability to account for variations in the referential strength, or the forms of reference, that an argument can exhibit.

It is worthwhile quickly looking at the claim that quantifiers are closely related to the clause as a whole. Russell, for instance, stated that a

quantifier is not meaningful in isolation from the verbal phrase it is part of (1905, 481). A quantifier thereby gains its meaning in relation to clausal structure. We might illustrate that with a paraphrase of (9):

(9*) There exists at least one *x* such that *x* is human and *x* is tall.

The quantifier *some* is not explicit in this paraphrase but is instead captured by the condition that 'there exists at least one *x*', which binds the variable in '*x* is human' and '*x* is tall'. The variable binding is thus spread across the sentence. It is because quantifiers give rise to variable binding across the clause that they can be understood to be closely related to the sentence as a whole, which helps explain their semantic-type <<e, t>, <<e, t>, t>> and its full clausal structure.

We may conclude this section by listing three key differences between singular and general propositions. The first is that singular propositions contain an element of type <e> in a subject position whereas general propositions do not. The second is that the subjects of singular propositions are complete expressions (with no slots for saturation), whereas the subjects of general propositions require saturation. Finally, the subjects of singular propositions denote a particular individual, whereas the subjects of general propositions do not. These very minimal distinctions capture the dichotomy between singular and general propositions, a dichotomy that has been central to the descriptions literature. Furthermore, the dichotomy provides distinct contributions for each type of proposition to linguistic meaning and the truth-conditional content, 'what is said', in a clausal structure.

2.3

PRAGMATIC MACHINERY

Thus far we have provided one way in which a compositional semantic theory can be constructed. The type-based formal semantics that we described above was introduced as a form of literalism and understood to ground linguistic meaning as well as fully specifying the truth-conditional content, 'what is said', in an expression. The derivational dynamics is determined by the semantic-types held by the individual words in an expression and hence the truth-conditional content of a given clausal structure can be provided in isolation from its use on a particular occasion.

At this juncture, we must turn to consider how the formal system interacts with actual language use.

We can begin by providing a working definition of the semantics/pragmatics distinction and how it is constructed in literalism. A standard intuition is that semantics is concerned with language in isolation from use whereas pragmatics is concerned with language in use. The distinction can be seen as one between expressions of a language themselves and how they interact with the world (Szabo 2005, 1). For instance, the semantics of an expression ζ can be associated with ζ's linguistic meaning, which is provided by the derivational dynamics of a type-based semantics. However, upon being used in a speech-act ζ will become entwined with further aspects of communication: communicative efficacy, context, the speaker's intentions, background knowledge, cultural factors, and so on. Nevertheless, this distinction might be taken to constitute a "slogan" rather than a "clarification or explanation" (Salmon, 2007, 340). We will now turn to offer more insight into how to construct the distinction below, which will help us as we progress to consider the various theories of descriptions.

In our initial analysis of literalism and contextualism we described the tripartite distinction between linguistic meaning, 'what is said', and 'what is implicated'. Thus far, we have associated the linguistic meaning of an expression with its logical form. For those defending literalism, the logical form of a clausal structure also fully specifies the truth-conditional content, or 'what is said'. This final claim is denied by contextualism. Contextualism admits that linguistic meaning might be fully specified by logical form but denies that truth-conditional content is. Instead, contextualism contends that we must admit pragmatic machinery into the completion of truth-conditional content. For contextualism, the truth-conditions of an expression are settled through both linguistic meaning and speaker's meaning. However, the two positions do agree that 'what is implicated' is a matter of pragmatics and is settled through speaker's meaning. We can therefore begin our discussion of the semantics/pragmatics distinction through an analysis of the common ground shared between literalism and contextualism, before turning to analyse where they diverge.

An influential account of 'what is implicated' was provided by Grice (1989). Implicatures are understood to accompany the use of a linguistic

expression, consequently enriching the communicative act in which it is placed. It is possible to divide implicatures into two types, generalized implicatures and particularized implicatures. The two types of implicatures are grounded in what Grice terms 'conversational implicatures', which we can summarize as follows:

> Quantity – I expect your contribution to be neither more nor less than is required.
>
> Quality – I expect your contributions to be genuine and not spurious.
>
> Relation – I expect your contribution to be appropriate to the immediate needs at each stage of the transaction.
>
> Manner – I expect you to make it clear what contribution he is making and to execute his performance with reasonable dispatch. (1989, 28)[40]

The above maxims are understood to be present in all language use. Grice understands the conversational maxims in conjunction with what he terms a 'cooperative principle': "[m]ake your conversation contribution such as is required, at the stage at which it occurs, by the accepted purpose of the talk exchange in which you are engaged" (1989, 26). These maxims ground implicatures and can be understood as guides for communicative efficacy. The distinction between particularized and generalized implicatures can be put as follows, "[s]ome conversational implicatures seem context-bound, while others have a very general currency" (Levinson 2000, 92).

We will begin with those implicatures that have a 'general currency', generalized implicatures, before moving onto consider 'context-bound', particularized, implicatures. An implicature is taken to be generalized if it is employed extensively in language use and without specific contextual background. Generalized implicatures are present across natural language as a whole (Grice 1989, 37). If an implicature is understood as generalized, then it can accompany an expression without any specific contextual machinery. The following would qualify as such an example:

(10) I enjoy eating Spanish cuisine.

IMPLICATURE I think Spanish food tastes good.

[40] The conversational implicatures are outlined by Grice in relation to a situation where the speaker and audience are mending a car. For the purposes of the quote, we have omitted this detail and extracted the core definition of each category.

In (10) we have an act of communication and a corresponding implicature but the implicature itself does not depend upon any particular context. The generalized implicature derived from (10) embodies an implicature that any competent language user would infer without specific reference to the context of use.

The second type of implicature is labelled particularized in virtue of being employed in specific contexts where a particular set of background assumptions is present rather than a universal rule of pragmatics. Consider for instance the following exchange, which we will assume to be spoken in a context where the speaker and audience are discussing Spanish food:

(11) My housemate is Spanish.

IMPLICATURE You should come round for dinner.

In (11) the implicature depends upon background knowledge that has been supplied by the specific context in which it is uttered. Further instances of the utterance in (11) will fail to provide the same implicature and hence it is particularized. The two examples of generalized and particularized implicatures are not guaranteed by the linguistic meaning of the utterances but instead by how those utterances interact with general and particular rules governing contexts of use and so on.

A further aspect of the semantic/pragmatics distinction concerns context-sensitive expressions. Let us look again at the sentence in (1), repeated below:

(1) I am tired.

In order to understand (1) and assign it truth-conditional content it must be taken relative to a context of use. We might state that the truth-conditions of (1) require reference to a set of 'contextual-coordinates' that involve, for instance, the person that utters (1). The truth-conditions will vary depending upon who indeed utters (1). It might be said therefore that the truth-conditions require contextual enrichment in the sense intended by contextualism. However, as stated above, indexicalism (a form of literalism) claims that it is the linguistic meaning of (1) that *demands* saturation from the context (Recanati 2004, 88). According to indexicalism, if the linguistic meaning demands saturation from the context, then we can retain the view

that the linguistic meaning provides a specified set of truth-conditions. In other words, whilst (1) demands that it is understood relative to a particular context of use this demand comes from its linguistic meaning. The semantics of (1) thereby provides a minimal proposition for it in isolation from its use. Literalism thus rejects the notion that the truth-conditional contribution of context-sensitive items like indexicals must be derived from pragmatic machinery.

Another example that raises a distinct problem for literalism is as follows:

(11) I've had breakfast.

As Recanati notes, an utterance of (11) would be true if the speaker had eaten breakfast only once in their life, however that is not what is commonly meant by the speaker in uttering it. Instead a felicitous use of (11) is one whereby the speaker intends to communicate (12):

(12) I've had breakfast *this morning*.

According to contextualism, in order for (11) to express the proposition in (12) it must be contextually enriched, and this contextual enrichment is not necessarily demanded by the linguistic meaning of (11). For contextualism, the contextual enrichment applied to (11) comes courtesy of the speaker's intentions in using it. The truth-conditions that a typical utterance of (11) expresses, namely those expressed explicitly in (12), are therefore provided by aspects of speaker's meaning. Contextualism then takes this position further in claiming that there is no expression whose truth-conditions are settled without its being contextually enriched. In opposition to both literalism and contextualism we will argue in §5.42 that grammar fully specifies what is said in a speech-act through situating a clause in a speech-event frame (Sigurðsson 2004b; 2009; Hinzen *forthcoming*).

At this point we can introduce a final terminological distinction, which we can use in conjunction with the distinction between literalism and contextualism. The distinction concerns that between an 'expression centred conception' of semantics and a 'speech-act centred conception', with the former associated with literalism and the latter with contextualism. We can use Salmon's definition of the two as follows, the expression centred conception states that "the semantic attributes of expressions are not conceptually derivative of the speech acts performed by their utterers,

and are thought of instead as intrinsic to the expressions themselves… that as such, they have a semantic life of their own", whereas for speech-act conception semantic attributes "somehow reduce to, are to be understood by means of, are derived from, or at least are directly determined by, the illocutionary acts performed by speakers in using those expressions" (Salmon 2004, 238). The grammatical thesis (GT) will produce an alternative to each of these that we might label a 'grammar centred conception' of semantics. It will be illustrated in §5.4 that grammar encodes for speech-act features, which cannot be readily extracted from its linguistic meaning.

To conclude this section on the semantics/pragmatics distinction we can derive a full speech-act and detail at which points the operations thus described take place. Initially we have the formal semantic system producing a logical form, which captures the linguistic meaning of the expression that will be employed in the speech-act. Upon being used, any element within the linguistic meaning that demands saturation from the context will become valued. At this point, literalism will claim we have fully specified truth-conditional content; we will have reached the level of 'what is said'. This constitutes an expression centred conception of semantics. Once the speech-act has occurred the utterance becomes enriched in a variety of ways through pragmatic machinery (context, speaker' intentions, background and cultural effects, etc.) and provides the speaker and audience with a variety of implicatures, some generalized and potentially some particularized. It is only after this final stage that contextualism will understand there to exist a fully specified truth-conditional content and what is said. All of the above work constitutes the semantic framework that is at the heart of the descriptions literature, and much of it will come to be rejected in favour of an alternative in §5.

2.4

FORMS OF REFERENCE

The semantic framework that we have detailed provides a few options available in developing a blueprint or skeleton for compositional semantics. We introduced and outlined a type-based formal semantics and detailed how words are assigned such types. Furthermore, we introduced pragmatic machinery that accompanies the logical form of an expression in

an utterance. To conclude this chapter we will look at the forms of reference that a formal semantics, in conjunction with pragmatic machinery, enables for arguments. Within the system developed the forms of reference will be understood to be properties of the lexical items themselves, which is a result of the type-based analysis. The forms of reference that we will detail are both lexicocentric and restrictive, but they are nevertheless employed in the descriptions literature (as will be made explicit in §3 and §4).

We can begin by stating that certain arguments can be grouped as exhibiting a 'strong' form of reference. Arguments that fit in this category are assigned the semantic-type <e>, and include proper names, pronouns, and demonstratives. In terms of their semantic-type there are no formal distinctions between the various arguments that exhibit strong forms of reference. We can begin our discussion with proper names as exhibited in (13):

(13) Ronaldo is tall.

The name *Ronaldo* is a type <e> expression, which means that its intension is an individual concept and its extension is a particular individual. The proposition (13) expresses is thus singular. We can take *Ronaldo* to exhibit a strong form of reference in virtue of being an instance of rigid designation. The lexical entry for *Ronaldo* thus includes its being of type <e> and being a rigid designator, together with whatever idiosyncratic information that a language user may attach to it. The formal system developed takes this to constitute the names linguistic meaning.

In contrast to proper names, some type <e> expressions do not have constant extension but are instead context-sensitive. For instance, a pronoun such as that in (14) is of type <e> but is nevertheless context-sensitive:

(14) I am tired.

The semantic value of *I* is dependent upon the context of use. Formally, this is represented through taking the pronoun to be indexed and assigned a value from the speech-act context. The form of reference that the pronoun exhibits is once again captured as part of its lexical entry, and in virtue of being the lexical entry including its semantic-type <e>. The same analysis

extends to demonstratives, and arguably complex demonstratives, which are labelled as type <e> whilst being context-sensitive. The proposition (14) expresses is thus singular, just as with proper names. We can understand the pronoun in (14) as expressing strong reference.

The second form of reference that we can introduce through the formal system is termed 'weak' and includes arguments that are quantificational or purely predicative. We will continue to term this a form of reference, but note the caveat that it is of a distinctly different, and weaker, sort than that of type <e> expressions. Amongst this class of expressions are included existential and universal quantifier phrases, bare nominals, and arguably definite descriptions.[41] Quantifiers receive the semantic type <<e, t>, <<e, t>, t>>, and bare nominals the type <e, t>. Therefore, neither kind of expression is of type <e>. An example of an expression that exhibits a weak form of reference is (15):

(15) Someone is tall.

The argument in (15) does not pick out a particular individual, and the proposition (15) picks out is thus general. Once again the lexical entry for *someone* contains its semantic-type, which in turn dictates its linguistic meaning and contribution to the overall compositional semantics of the expression it is part of.

The distinction between type <e> expressions, which exhibit a strong form of reference, and non-type <e> expressions including type <<e, t>, <<e, t>, t>>, which exhibit a weak form of reference, is the only semantic distinction available for detailing the forms of reference that arguments may exhibit. There is one further form of reference that is enabled within this formal system, but it emerges through pragmatic machinery, including speaker's meaning, rather than an expression's linguistic meaning. For instance, take a situation where the speaker and a member of the audience are aware of the culprit alluded to in (16):

(16) Someone broke the window.

An utterance of (16) includes an argument that expresses a weak form of reference. The quantifier *someone* has the semantic-type <<e, t>, <<e, t>, t>>,

[41] A bare nominal is a "noun used without any determiner to modify it" (as in *I eat fish*), which is nevertheless capable of taking an argument role within a clause (Radford 2004, 437).

but the utterance may still manage to communicate a something about a particular individual given the context and speaker's intentions. In uttering (16) the audience member who is aware of the culprit may succeed in inferring that the quantificational expression *someone* is being used to hide an individual's, let's say John's, identity. There is nothing in the linguistic meaning that forces the expression to refer to John or any other individual. Instead, the act of reference is enabled through pragmatic machinery. We might term this a pragmatic form of reference.

The three forms of reference exhibited above (the strong <e> form, the weak <<e, t>, <<e, t>, t>> form, and the pragmatic form) exhaust the range available within a type-based semantic system. Additionally, reference is understood as a property that a lexical item carries. In §5 and §6 we will criticize this lexicocentric conception of reference, and state that a thorough investigation of grammar can initiate a wide set of forms of reference that are grounded in grammatical configurations instead of lexical items. The argument will develop a 'hierarchy of reference' that ranges from weak quantificational reference through stronger forms exhibited in rigid proper names and ending with the strongest form in personal pronominal reference (Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014). The idea at the heart of this alternative is that compositional semantics should not be derived through a type-based lexicocentric system. Instead, the meaning of a word and its role in a compositional semantics is 'exo-skeletal', which means it is determined from the wider grammatical environment in which it is placed (Borer 2005, 15).[42] The lexicocentric view, and the forms of reference it enables, is nevertheless central to the theories of description to which we now term, the QT (§3) and two ATs (§4), and grounds their respective solutions to the three ambiguity problems. Furthermore, as we will see, each theory is built in the mould of literalism.

[42] The theory we will defend shares some similarities to supposition theory as developed through the 12th and 13th century by medieval logicians and grammarians. Supposition theory understands the referential status of a nominal expression, for instance a noun, to be derived through its interaction with the wider grammatical configuration in which it is placed. For instance, the word *man* in *man is an animal* has a wider referential function than it does in the sentence *that man is an animal*. Crucially for supposition theory, these grammatical differences have truth-conditional effects (for more on supposition theory, and the medieval precursors to the grammatical theory of meaning that we will defend, see Ebbesen 1981; 2013; and Spade 1982).

3

THE RUSSELLIAN THEORY OF DESCRIPTIONS

The two previous chapters detailed three ambiguity problems (§1) and the semantic framework within which the descriptions literature falls (§2). It is now time to analyse the most prominent theory of descriptions, the Russellian theory. It is worth stating at the outset that the Russellian theory is embedded within the framework of literalism and is thus moulded by the framework detailed in §2. Our purpose here will be to provide an exposition of the Russellian theory (1905) as well as two strategic amendments made to it by Kripke (1977) and Neale (1990; 2001; 2004). In §3.1 we will introduce the motivation for the Russellian theory, including a brief overview of the puzzles it was designed to solve (metaphysical commitments, bivalence). Next, in §3.2 we will reiterate Donnellan's CAP and introduce Kripke's pragmatic supplement to the Russellian theory. Kripke's modification states that we can retain a Russellian semantics the linguistic meaning of definite descriptions and state that the genesis of the ambiguity is to be found in pragmatic machinery, including speaker's meaning. In §3.3 we will review Neale's further defence of the Russellian

theory and his attempt to streamline it with syntactic structure. Additionally, we will analyse his solutions to three problems often raised against it: the problems of misdescription, incompleteness, and referential anaphora. Throughout the thesis we will argue that the Russellian theory is committed to a lexicocentric view of compositional semantics and that the account it offers for referential descriptions is thus limited to the forms of reference outlined in §2.4. Furthermore, we will argue that the treatment of syntax offered by Neale fails to recognise key facets of the grammar of DPs that impact the semantic interpretation of arguments, including, critically, the forms of reference they may exhibit. For these reasons we will tentatively reject the Russellian theory with a view to providing a grammatical alternative (§5 and §6).

The purpose of this chapter is twofold, the first aim is to elucidate and characterize Russellian theory of descriptions and the modifications it has undergone in the literature, and the second is to detail problems that it faces once applied to natural language use and certain aspects of the faculty of language (namely grammar). In developing the first aim we will provide an analysis of the backbone of the Russellian theory, namely its quantificational semantics for definite descriptions and interaction with pragmatic machinery. With respect to the second, we will detail problems that emerge specifically from the theory's interaction with grammatical structure as currently understood in the generative enterprise. Overall, a core intention of this chapter is to provide reasons to think that an analysis of grammar might shed light on the semantics of definite descriptions, help integrate it into an empirical and explanatory enterprise of linguistic theory, and provide a stronger solution to the three ambiguity problems than the Russellian offers.

3.1

RUSSELL

The Russellian theory remains the dominant account of the semantics of definite descriptions (Schiffer 2005, 1135). The proposal states that definite descriptions are quantifier phrases that create object-independent propositions. It is thus a quantificational thesis (QT). The fact that it remains the foremost theory of descriptions is remarkable given its age but it explains why Russell himself considered it his finest philosophical essay

(Neale 2005a, 810). For over a century numerous philosophers have maintained a Russellian theory of descriptions, and in the face of detractors they have sought to strengthen the theory through modification rather than abandon it (Kripke 1977; Neale 1990; 2001; 2004; 2005a; Bach 1981; 2004a; 2004b; 2007; Salmon 1982; 1991; 2004). This collected effort says something about the power of the Russellian theory, namely that many believe it is worth saving.[43]

The motivation for the Russellian theory is founded upon solving at least two puzzles. The first puzzle is that of the ontological status of individuals picked out by non-denoting descriptions, and the second puzzle concerns how we should account for the truth-conditions, and subsequent truth values, of propositions containing non-denoting descriptions. The first puzzle is one raised by Russell against the view that definite descriptions are singular terms. The puzzle concerns how we should assign semantics to non-denoting descriptions if they fail to make reference to particular individuals. The second puzzle derives from the first and has to do with whether or not we can assign truth-conditions to a proposition containing a non-denoting description. The two problems both relate to the ontological implications contained in stating that a given phrase is semantically referential. The Russellian answer to each problem is that propositions containing definite descriptions are semantically quantificational not semantically referential.

3.11

DEFINITE DESCRIPTIONS AS SINGULAR TERMS

The literature on descriptions is founded upon a particular conception of semantics that Russell developed in the *Principles of Mathematics* (POM 1903) and 'On Denoting' (OD 1905). Russell defended the view that in order for a given sentence to have a meaning, each constituent of it must also have a meaning (1903, 43; 1919a, 7). Within this tradition, an expression ζ is taken to be a singular term, or a genuine referring expression, if and only if the

[43] Schiffer notes that "the theory Russell presented in 1905 is not acceptable in the form in which he then stated it" (2005, 1135). However, over the years numerous 'reconstructive surgeries' have been applied to the theory to keep it 'up to date' with modern semantic theory, and these are readily distinguished and labelled as Russellian. A Russellian theory of descriptions is simply one that remains true to the core insight that definite descriptions are semantically quantificational.

meaning of ζ is identical with the individual it 'picks out'.[44] In other words, ζ stands for an individual. Following this, if a sentence containing ζ is to have a meaning, then that meaning will depend upon the referent of ζ. The truth-conditional content of a proposition expressed by a sentence containing ζ will therefore depend upon the individual ζ picks out. This is what it means to say that the proposition is object-dependent. An object-dependent proposition contains a singular term, which in order to be meaningful cannot fail to refer (Neale 1990, 5; Stevens 2011, 47). For example, given a sentence *S* that contains ζ, if *S* is to pick out a determinate proposition then ζ must pick out a determinate individual, and if ζ fails to do this then *S* fails to pick out a determinate proposition. In this case *S* would be meaningless and lack truth-conditions. This result is most unwelcome to those wishing to defend a truth-conditional semantics of the sort described in §2.2.

One interpretation of Russell's view in POM is that definite descriptions act as singular terms, their meanings depend on particular objects. Consider the following sentence:

(1) The round square is a contradictory geometrical object.

If we take *the round square* to act as a singular term, then its meaning will depend upon its referent. A consequence of this is that (1)'s truth-conditional content will likewise depend upon the referent of the definite description. However, the phrase *the round square* fails to pick out an existing object. There are no round squares. A consequence of this is that (1) thus appears to lack a determinate truth-conditional content. Nevertheless (1) is true. It is true that round squares are contradictory geometrical objects. A potential solution to the problem presented by (1) is that we should posit some kind of existence to round squares to which we can refer. At this point a further problem emerges, for what kind of existence do round squares have?

The existence problem is not restricted to definite descriptions. In POM, Russell acknowledges a wide range of singular terms. The term 'denoting phrase' was employed to cover all those phrases that were capable of picking out an individual. Russell states that "[a] concept *denotes* when, if it

[44] It is often argued that Russell held a direct reference theory of singular terms. In §4.1 we will analyse a theory from Kaplan, which makes such a claim.

occurs in a proposition, the proposition is not *about* the concept, but about a term connected in a certain particular way with the concept" (1903, 54), and "[t]he fact that description is possible—that we are able, by the employment of concepts, to designate a thing which is not a concept—is due to a logical relation between some concepts and some terms, in virtue of which such concepts inherently and logically denote such terms" (1903, 54). Therefore, denoting phrases are akin to logically proper names (Makin 2000, 14). Another passage from Russell helps solidify this reading, "[i]f I say 'I met a man', the proposition is not about *a man*: this is a concept that does not walk the streets, but lives in the shadowy limbo of the logic-books. What I met was a thing, not a concept, an actual man with a tailor and a bank account or a public-house and a drunken wife" (1903, 54). At first glance, it appears natural to understand Russell as keen to treat denoting phrases as singular terms standing for particular existing individuals, which is a position often labelled 'Meinongian'.[45] Within a modern compositional semantics they would be understood as exhibiting the form of reference captured in the semantic-type <e>.

We can define the view as follows:

(2) Definite Descriptions as Singular Terms

> A definite description stands for an individual and the meaning of a given definite description is identical with the particular individual it stands for (1903, 54).[46]

The linguistic meaning of a definite description thus denotes a particular individual. Its truth-conditional contribution to a proposition it is contained within is thus an individual (or individual concept). In virtue of the linguistic meaning of a definite description fully determining its

[45] This interpretation has its origin in Quine, who held that Russell took all denoting phrases to stand for existing things, "every word referred to something" (1966, 658). Furthermore, charging Russell with defending a Meinongian ontology, Quine argues that Russell is thus committed to a "intolerably indiscriminate ontology" until OD (1966, 658-659).

[46] The concept of a logically proper name is neatly captured by Mill who claimed that "[p]roper names are attached to the objects themselves, and are not dependent on the continuance of any attribute of the object" (1882, 41). Proper names pick out particular individuals directly. They stand simply as 'marks' for objects, rather than standing for a collection of attributes that a particular individual exhibits. Russell retains this concept of logically proper names throughout his philosophy (1919b, 143), however from OD onwards he rejected the inclusion of definite descriptions in the category of logically proper names.

contribution to 'what is said', the thesis is one founded in literalism. It is the view described in (2), often assumed to be defended in POM, that Russell came to reject in OD. Russell saw no way of reconciling the position that definite descriptions are singular terms with the ontological commitments that such a theory demands.

The theory of descriptions is often understood as emerging as a vehement attack on Meinong's theory of objects (1904), and the ontological commitments it entailed with respect to certain expressions. To understand the attack we can make use of some examples. Firstly, it is true that some denoting phrases pick out objects whose existence is uncontroversial:

(3) Ronaldo is a footballer.

Taking *Ronaldo* to be a singular term, an utterance of (3) picks out an object-dependent proposition, a proposition whose truth depends upon the actual individual Ronaldo. As Ronaldo's existence is uncontroversial, a sentence such as (3) picks out a determinate proposition with a determinate meaning, and we can straightforwardly investigate its truth. Similarly, (4) picks out an existing individual:

(4) The manager of Manchester United is Dutch.

If we take *the manager of Manchester United* to be a singular term, then the truth of (4) depends upon the individual it picks out. As that individual exists, the meaning of (4) is likewise determinate. However, it is not the case that all names or definite descriptions succeed in referring to an actual individual, as in (5):

(5) The round square is a contradictory geometrical object.

In contrast to (3) and (4), the subject of (5) does not pick out an existing individual. It has no denotation. If we are to take (5) to be expressing an object-dependent proposition, then we must understand the meaning of *the round square* as being related to a particular individual. However, as stated above, it is unclear what sort of individual the round square could be.

One motivation often raised for the theory of descriptions is that Russell wanted to avoid positing an abundance of curious individuals to act as the extensions for any possible definite description. For instance, Russell wanted to avoid positing round squares, which are somewhat entailed if

we take the definite description in (5) to be a singular term. The quantificational theory is thereby concerned with a restricted and modest set of individuals, and equally a restricted and modest ontology. Russell does not want to let language rule his ontological commitments. It is often claimed that Meinong was not so restrictive and accepted that round squares maintained a sort of being, they were the objects of reference. Russell directly attributes this view to Meinong (1919b, 169), and Meinong's ontology as thus been labelled a 'jungle' due to the abundant number of weird and wonderful objects it contained (Jacquette 1996).

One reading of Meinongian ontology is that it posits referents for seemingly non-denoting phrases.[47] According to Makin, "[t]he most salient features of Meinong's position… is his admitting of objects corresponding to empty descriptive phrases which are held to subsist but not to exist, and of objects corresponding to contradictory descriptions" (2000, 58). Meinong's jungle thus contains the individuals picked out by empty descriptive phrases, including objects with contradictory properties (Russell 1919b, 169; Kripke 2005, 1015). Russell thereby saw his theory as reducing the ontological burden of denoting phrases, as Hacker notes this "enabled Russell to thin out the luxuriant Meinongian jungle of entites (such as the square circle) which, it had appeared, must *in some sense* subsist in order to be talked about" (1986, 8).[48]

Following this interpretation, the project in OD was thus fuelled by a desire to avoid having language run riot on our ontological commitments. Russell understood singular terms as having a strong ontological commitment that rendered their linguistic meanings dependent upon particular individuals. Therefore, if definite descriptions were to be singular terms and to be

[47] It is worth mentioning that this interpretation of Meining is not unanimously accepted. Jacquette notes that "[w]e can have as many beingless Meinongian objects as the semantics of discourse requires without inflating objects with unnecessary entities or objects with being by so much as one iota" (Jacquette 1996, 21). In other words, there is no ontological commitment to the referents of empty denoting phrases, they are simply intended referents. Kripke notes much the same thing, "[s]ometimes I have wondered whether Meinong (at least the Meinong of 'On Denoting') was an imaginary figure invented by Russell, who was so upset that he did not really exist that he invented a doctrine that even beings like him have some weaker form of existence" (2005, 1015).

[48] The 'thinning out' of the Meinongian jungle is something Quine likewise notes as an aim of OD (1966, 659). However, Stevens argues that "whether Russell realised it or not… those objects", objects of a Meinongian jungle (impossible objects for instance), "could already have been eliminated by the 1903 theory" (2011, 52).

meaningful, then their referents better have some form of existence. Furthermore, if a proposition containing a definite description (understood as a singular term) is to be understood as having a fully specified set of truth-conditions, that is, fully specify 'what is said', then the linguistic meaning of the definite description must contribute to what is said.[49] Russell therefore saw a rejection of (2) as the only way in which to avoid unnecessary embellishment to one's ontology. It was in this rejection that the theory of descriptions was formed.

3.12

ON DENOTING

The theory of descriptions emerged initially in OD and was later cemented in the *Principia Mathematica* (PM 1910/1962). The theory is regularly taken to mark a radical shift in Russell's approach to the ontological commitments of denoting phrases. Instead of treating them as singular terms, Russell opted to analyse them as 'incomplete symbols' (PM 1962, 66; Hacker 1986, 8). The linguistic meaning of incomplete symbols was quantificational and completed through the verbal phrases that they attached to. In providing this analysis, the resultant propositions contained no singular terms and were therefore general and object-independent. It is through such means that sentences such as (5) could be given a fully specified truth-conditional content without recourse to an ontological commitment to round squares. The upshot of the theory was that there was a decrease in the number of expressions whose meanings depended upon particular individuals and a reconceptualization of definite descriptions as being quantifier phrases.

As a historical note, it is important to mention that not everyone believes the POM to hold such a radical set of ontological commitments, and such an abundant ontology. It is true that Russell defends the view that a sentence containing a definite description must involve that description providing a constituent to the proposition the sentence expresses, but the machinery in

[49] Definite descriptions thus do not contribute to truth-conditional content in the same way as singular terms do, ""[w]henever the grammatical subject of a proposition can be supposed not to exist without rendering the proposition meaningless, it is plain that the grammatical subject is not a proper name" (Russell & Whitehead 1910/1962, 66). Therefore, "to entertain an object-dependent proposition about a particular individual, one must be acquainted with that individual"(Neale 1990, 17-18). Instead, with denoting phrases we are acquainted with 'special propositional constituents such as denoting concepts' rather than actual living breathing individuals (Stevens 2011, 55).

POM can do this without recourse to ontological commitments to the referents of empty descriptive phrases. As Stevens points out, "there must be a constituent in the subject position of a Russellian proposition if it is to have a truth-value, but there *is* something in the position of a Russellian proposition expressed by a sentence containing an empty denoting phrase, namely an empty denoting *concept*" (2011, 64). We might thereby take it to be true that the theory of descriptions avoids an ontological commitment to the referents of empty descriptive phrases, but state this without endorsing the Quinean treatment of the POM as defending a Meinongian ontology.

3.121

DENOTING PHRASES

In the period between 1903 and 1905 Russell had become dissatisfied with treating definite descriptions as singular terms, which he claimed was both 'artificial' and 'to be avoided if possible' (1905, 484). The first reason for this was that denoting phrases do not guarantee the existence of the individual that they are meant to stand for. The second reason is that we need an account that renders (5) true without recourse to an ontological commitment to round squares. A choice was made to form a dichotomy between denoting phrases and singular terms. In opposition to (2), denoting phrases were defined as quantifier phrases whose contribution to truth-conditional content did not depend upon a particular individual.

Russell defines denoting phrases solely in virtue of their 'form' (1905, 479):

> [b]y a "denoting phrase" I mean a phrase such as any one of the following: a man, some man, any man, every man, all men, the present King of England, the present King of France, the centre of mass of the Solar System at the first instant of the twentieth century, the revolution of the earth round the sun, the revolution of the sun round the earth. Thus a phrase is denoting solely in virtue of its form. (1905, 479)

Kripke understands Russell to be defending a syntactic parallelism between all types of denoting phrases (2005, 1007). Kripke's label of a syntactic parallelism has to do with the fact that all denoting phrases can be given a quantificational analysis:

> [a]lthough at first blush a definite description might appear to be a complex term designating a single object, it is parallel in form to the other denoting phrases. If it were natural to analyse the other 'denoting phrases', such as 'every man', 'some man', 'a man', and so on, as really quantifiers and quantifier phrases, so would it be to analyse corresponding phrases beginning with the word 'the'. (2005, 1007)

Stevens notes that the term 'denoting phrase' is meant to capture something purely grammatical, which might be captured simply in stating that such phrases have the form of determiner phrases (DP), whose structure contains a determiner (D) and, at least, a noun phrase (NP) complement (2011, 11). Furthermore, the theory of descriptions is intended to provide a framework for natural language quantification more generally (2005, 1007). Furthermore:

> A phrase may be denoting, and yet not denote anything; e.g., "the present king of France". A phrase may denote one definite object; e.g., "the present king of England" denotes a certain man. A phrase may denote ambiguously; e.g., "a man" denotes not many men, but an ambiguous man. (1905, 479)

This passage highlights the final abandonment of (2). We may understand the linguistic meaning of a denoting phrase without 'acquaintance with the objects denoted' by it (1905, 480). The three options listed here are cross-categorical and apply to any denoting phrase. Finally, the term denoting phrase is applied without reference to grammatical differences, further highlighting the ancillary role that grammar plays in the semantic tradition.[50]

3.122

QUANTIFICATION

The Russellian theory of descriptions defends a QT, thereby rejecting the view that the linguistic meaning of a definite description is ever referential

[50] As Stevens notes, "it is very important to recognize" that denoting "is not a function carried out by a linguistic expression; it is a function carried out by a *concept* that is expressed by a linguistic expression" (2011, 54).

(Stevens 2011, 21).[51] Any sentence containing a definite description thus has the logical form of a complex of variables bound by quantifiers, which are spread across the proposition it expresses. The Russellian analysis thus rejects the view that definite descriptions are of type <e>, and instead takes them to be type <<e, t>, t>. In virtue of being a quantificational complex, studying the semantics of definite descriptions involves an analysis of the propositional whole over which it is spread. For Russell, an analysis of definite descriptions cannot be made in isolation:

> [d]enoting phrases never have any meaning in themselves, but that every proposition in whose verbal expression they occur has a meaning. The difficulties concerning denoting are, I believe, all the result of a wrong analysis of propositions whose verbal expressions contain denoting phrases. (1905, 480)

And in PM:

> [a]ll phrases (other than propositions) containing the word *the* are incomplete symbols: they have a meaning in use, but not in isolation. (1962, 67)

It is in virtue of the fact that definite descriptions are not complete symbols, they are not type <e>, that we must reject the referential view (1905, 480; 1962, 173).

Interestingly, the above passages appear to take a view that is inconsistent with what we have labelled a lexicocentric treatment of meaning. Russell's conception of quantification prevents the article having a meaning in isolation, and opts instead to treat it as semantically operative only insofar as it is embedded within a clausal structure. Nevertheless, the semantic contribution of the definite article remains consistent across clausal environments. The theory as currently conceived retains a quantificational treatment yet abides with a lexicocentric view through reimagining the Russellian semantics. This final point will be detailed, and subsequently rejected, when we come to look at Neale (§3.3).

[51] The forms of reference described in §2.4 would take the view to deny that the linguistic meaning of a definite description ever exhibits a 'strong' form of reference (i.e. rigid, deictic, or person reference).

3.123

THE THEORY OF DESCRIPTIONS

Russell understood definite descriptions as both the most interesting and the hardest of all the denoting phrases to give an analysis for (1905, 481). In contrast to other quantificational phrases, Russell took definite descriptions to assert uniqueness (1905, 481). The formal apparatus of universal and existential quantification was not, on its own, sufficient to handle this condition. Instead, a complex of the two in conjunction with an identity condition must be called upon. As an example, Russell assigns to the expression *the father of Charles II* (F) *was executed* (E) the following quantificational paraphrase "[i]t is not always false of *x* that *x* begat Charles II and that *x* was executed and that 'if *y* begat Charles II, *y* is identical with *x*' is always true of *y*'"(1905: 482).[52] Or in a less convoluted logical form:

(6) $\exists x(F(x) \,\&\, \forall y(F(y) \rightarrow y=x) \,\&\, E(x))$

The illusion of definite descriptions being referential phrases is shattered, as nothing referential remains in the underlying logical form of the denoting expressions. The formula "gives a reduction of all propositions in which denoting phrases occur to forms in which no such phrases occur" (1905, 482). Uniqueness is captured through stating that there is at least one *x* such that *x* has the property *F* and that for any value for *y* if *y* has the property *F* then *y* must be identical with *x*. Therefore, definite descriptions form a special type of quantification. They pick out one unique individual.

We can now turn to analyse how the Russellian theory solves the two problems introduced at the start of §3.1 concerning the ontological commitments of definite descriptions and the truth-values attached to sentences containing empty denoting phrases. Russell asks us to consider the sentence *the present King of France is bald*. It is clear that the sentence is meaningful and we know what it would take for it to be true, we know the truth-conditional content it expresses, yet the definite description has no

[52] An interesting historical note is that Russell uses negated universal quantification instead of existential quantification. Kripke claims that this may be done to avoid asserting existence (Kripke 2005, 1008). This is further attested to by Stevens who states that the formalism does not commit to their being an individual that acts as the value for *x* (2011, 62). In OD the universal quantifier is primitive (2011, 21).

denotation. The sentence is not true, as there is no King of France, therefore it must be false. As Russell notes:

> By the law of excluded middle, either "A is B" or "A is not B" must be true. Hence either "the present King of France is bald" or "the present King of France is not bald" must be true. Yet if we enumerated the things that are bald, and then the things that are not bald, we should not find the present King of France in either list. (1905, 485)

The law of excluded middle proves tricky for a singular term analysis of the definite description. For instance, if we were to list the set of all bald things, then we would notice that the set does not contain the King of France, and the same goes for the set of non-bald things. In virtue of failing to denote, *the present King of France* does not pick out an individual in either set. Alternatively, in virtue of being quantificational, Russell's theory can solve the problem through scope without invoking any ontological commitment to a present King of France.

The law of excluded middle states that one of either *the present King of France is bald* or *the present King of France is not bald* must be true. We know the first sentence is false. Therefore the second sentence must be true. We can interpret the second sentence in two ways, which elicit a scope distinction concerning the negation:

(7) The present King of France is not bald.

(8) It is not the case that the present King of France is bald.

Russell states (7) remains false, but (8) is true in virtue of it implicating that there is no present King of France (1905, 490; 1962, 69). Furthermore, (8) is the genuine negated sentence as the negation has scope over the entire clause.[53] Through (6) we can formalize the two as follows:

(7*) $\exists x(F(x) \,\&\, \forall y(F(y) \rightarrow y{=}x) \,\&\, \neg B(x))$

(8*) $\neg\exists x(F(x) \,\&\, \forall y(F(y) \rightarrow y{=}x) \,\&\, B(x))$

[53] For an extensive discussion of the role of scope in the theory of descriptions see Stevens (2011, 23-37).

When the negation takes scope over the entire expression the logical form states that it is not the case that there exists an individual who is both the present king of France and bald, which is the desired result. The scope that is enabled by the quantificational structure thus solves the problem of empty denoting phrases and retains the law of excluded middle, which is a positive result for the Russellian.

We can conclude with a brief overview of the Russellian theory:

(9) The Russellian Theory of Descriptions

i. A definite description *d* has no meaning in isolation from a clausal structure.

ii. The linguistic meaning of a proposition *p* containing *d* is quantificational and object-independent.

iii. 'What is said' in using *p* can be understood without identification of *d*'s denotation.

iv. From (*i*)-(*iii*), definite descriptions are not captured in the semantic-type <e>.

v. The truth-conditional content and subsequent truth-value of *p* can be given when *d* is an empty descriptive phrase through scope, without further ontological commitments.

As is obvious, the theory described in (9) is in direct contrast to that in (2), and it constitutes the first major development in a QT for the three ambiguity problems. The Russellian solution to the genesis of the three ambiguity problems is dependent upon further modifications made to the theory that integrate it with actual linguistic practice. At this point in time, the Russellian theory is arguably limited to the 'shadowy limbo of the logic-books' (to use one of Russell's own expressions against him, 1903, 54). We can now turn to the central question of this thesis, to what extent can such a theory, a theory embedded in concerns over metaphysics and logic, be an adequate theory of natural language descriptions and the three ambiguity problems that emerge in language use?

3.2

KRIPKE

The first major modification to the Russellian QT comes from Kripke (1977; 1980). Kripke recognized the metaphysical and logical merits of the Russellian theory, as well as recognizing the clear linguistic intuition that definite descriptions are frequently used to refer. Kripke therefore recognised the existence of an ambiguity problem. In the wake of Donnellan's popularization of the classical ambiguity problem (CAP), Kripke sought to integrate the Russellian thesis with wider aspects of language use. The modification Kripke provided in accounting for the CAP reverberated through philosophy of language and impacted how the discipline views the interaction of semantics, pragmatics, linguistic meaning, speaker's meaning, and truth-conditional content. The modern era of Russellian defence turns on the claim that our linguistic intuitions that definite descriptions can be used referentially may latch onto pragmatic, rather than semantic, facts about language.

We detailed the CAP in §1.2, but let us briefly reignite the intuitions it is based upon. A sentence such as (10), for instance, can be used to refer to a particular desk:

(10) The desk is covered with books.

Supposing that there is indeed a desk present in the utterance context, we understand (10) as having said something about that particular desk, as having referred to it. However, a Russellian would claim that the intuitions are mistaken if they meant to capture the linguistic meaning of the definite description in (10). The ambiguity problem is thus that the Russellian must explain how it is that we understand a felicitous use of (10) as referring to the salient desk, and that this use is conventional.

Kripke upheld a unified semantics for definite descriptions. All definite descriptions are semantically quantificational.[54] Following Donnellan (1966, 297), Kripke believed the CAP to be founded in pragmatic facts about

[54] According to Kripke, the term ambiguity should be reserved for semantics. If there were to be an ambiguity, then it must emerge as part of the semantics, not simply in the way an expression can be used (1977, 262). In other words, Kripke denies that an ambiguity in how use expressions equates to a genuine ambiguity.

language use.[55] The main crux of his modification was to solidify a distinction between semantics *qua* a theory of meaning in isolation from use, and pragmatics *qua* a theory of natural language communication. We might understand Kripke as introducing the distinction between linguistic meaning and speaker's meaning. Kripke explained the genesis of the CAP as follows, the linguistic meaning of a definite description is always quantificational, however, in certain instances they can be used to refer through being supplemented by pragmatic machinery that accompanies what is said. We might understand the view as an advance on Donnellan's claim that "whether or not a definite description is used referentially or attributively is a function of the speaker's intentions in a particular case" (1966: 297). Therefore, if the referential use is enabled not through linguistic meaning but instead through speaker's meaning, then the genesis of the CAP is not semantic.

3.21

RIGIDITY

At this juncture it is vital to introduce the concept of 'rigidity'. It has been claimed that the attributive/referential distinction is one between non-rigid/rigid descriptions respectively.[56] Kripke accepts that definite descriptions can be used referentially, but denies that such uses elicit rigid reference. We can define a rigid designator as follows:

(11) An expression is a rigid designator if it designates the same object in every possible world in which it exists (1981, 48).

Proper names are understood as the quintessential instance of rigid designation (1981, 48). Names are understood to pick out the same individual in every possible world and enable 'trans-world identity' in possible world semantics. The name *Ronaldo* therefore picks out the same individual in every possible world in which he exists, even in worlds in which he never became a footballer. Conversely, definite descriptions do

[55] With respect to *Smith's murderer is insane*, Donnellan claimed that ""[t]he grammatical structure of the sentences seems to … be the same whether the description is used referentially or attributively: that is, it is not syntactically ambiguous" (1966: 297). It is for such reasons that we distinguish the CAP from the two grammatical ambiguity problems (GAP1 and GAP2).

[56] In §4.1 we will look at one such claim from Kaplan (1970, 1979a).

not meet the condition of trans-world identity. For instance, the definite description *the winner of the 2014 Ballon d'Or* picks out Ronaldo in the actual world, but may pick out Manuel Neuer, or anyone else for that matter, in another possible world. There is nothing essential to the definite description that makes it rigidly refer to Ronaldo, and it is not an essential property of Ronaldo that he won (1981, 48-49). In denying that the referential use of definite descriptions can be associated an act of rigid designation, Kripke is denying that such a definite description would pick out the same individual in every possible world. There is an intuitive validity to these claims. However, if rigidity is not the source of the CAP, then what is?

3.22

THE SEMANTICS/PRAGMATICS DISTINCTION I

As previously stated, the answer Kripke provides for the genesis of the CAP is that it is a result of pragmatic machinery that accompanies an utterance. The machinery comes in at the speech-act level, which captures linguistic performance. A distinction is thus drawn between linguistic meaning, which can be given in isolation from use, and pragmatic machinery that accompanies a given speech-act. For Kripke, semantics is thus context-independent instructions to build truth-conditional content (Stojanovic 2008). [57] A compositional semantics for an expression can therefore be given without recourse to pragmatic embellishments that accompany a particular illocutionary act. It can be given without reference to particular speech-acts in which it is employed. It now becomes transparent that a Russellian QT is framed within literalism.[58] It is thus an 'expression-centred' conception of semantics, "the semantic attributes of expressions are not conceptually derivative of the speech acts performed by their utterers, and are thought of instead as intrinsic to the expressions themselves… that as such, they have a semantic life of their own" (Salmon 2004, 238).

[57] Alternatives to this formulation are given by Carston (2008).

[58] Recanati states that this is the key part of the literalist 'idealisation', which is based upon the claim that "[f]or every statement that can be made using a context-sensitive sentence in a given context, there is an eternal sentence that can be used to make the same statement in any context" (2004, 84).

The ambiguity problem that Kripke's modification aims to solve is put succinctly by Reimer:

> [i]t is uncontroversial that definite descriptions can be used either referentially or attributively – that they can be used to *communicate* either singular or general propositions. It is also (relatively) uncontroversial that, when used attributively, the proposition literally expressed by the sentence uttered is a general proposition. What *is* controversial is the claim that, when used referentially, the proposition *literally expressed* by the sentence uttered is a *singular* (rather than general) proposition. (1998, 92)

Devitt similarly puts the problem as follows:

> [a] pragmatic explanation of referential uses must be based on the view that a person using a description referentially in uttering a sentence conveys a singular proposition *while saying a general quantificational proposition*. (2007b, 49)

Therefore, the issue concerns whether what is said in a referential use of a definite description is a singular proposition, or whether the referential aspect of the utterance is merely communicated as part of what is implicated.

Kripke provides an account that adheres to the latter analysis, that referential uses of descriptions merely communicate singular propositions rather than literally expressing them. The account must explain how one can deviate from the linguistic meaning of an utterance in order to communicate something distinct. The first important thing to note is that within literalism and expression-centred conceptions of semantics it remains possible for a speaker to deviate from the linguistic, or literal, meaning of a given expression when using it in a particular speech-act. As Salmon notes, with respect to a particular expression, "[w]e are constrained by the symbols' system of representation – by their semantics – but we are not enslaved by it. Frequently… what we represent by means of a symbol deviates from the symbol's semantics" (2007, 345), and this deviation is 'systematic' (2004, 238). The pragmatic machinery that Kripke employs in accounting for the CAP is an instance of a systematic deviation from semantic form, as we will see in §3.23.

To schematize the above, we can state that within a single speech-act there exists, at a minimum, the literal linguistic meaning of the utterance, information associated with the utterance context, the speaker's intentions in using the utterance, and various further principles governing language use. It is the final three of these that constitute the pragmatic machinery that enables the deviation captured in the referential uses of descriptions. In Kripke's words:

> [t]he notion of what words can mean, in the language, is semantical: it is given by the conventions of our language. What they mean, on a given occasion, is determined, on a given occasion, by these conventions, together with the intentions of the speaker and various contextual features. Finally what the speaker meant, on a given occasion, in saying certain words, derives from various further special intentions of the speaker, together with various general principles, applicable to all human languages regardless of their special conventions. (1977, 263)

In the Russellian QT it is the first of these, linguistic meaning, that fully determines truth-conditional content and what is said. The context of the utterance and the intentions of the speaker clear engage with the linguistic meaning of the utterance, but they do not impact what is said. The former constitutes the semantics and the latter two factors constitute the pragmatics.[59]

The semantics/pragmatics distinction that Kripke works to is clearly that of literalism, and the solution to the CAP is as well. The construal of what counts as semantic is restricted to deny all aspects of language use that come in at the speech-act level (unless demanded by the expression's linguistic meaning as in indexicalism). Those defending a Russellian QT often accuse their opposition as making a mistake regarding the semantics/pragmatics distinction. The mistake is often charged as one that emerges through defending a 'speech-act' centred conception of semantics. Keeping this in mind, we can now turn to look at how Kripke founds his pragmatic supplement to the QT, which he takes to protect the view from referential counterexamples.

[59] To reiterate, Recanati states that literalism "denies that the speaker's meaning play any role in fixing the truth-conditions of sentences" (2004, 85).

3.23

SPEAKER'S INTENTIONS AND SPEAKER'S REFERENCE

The strategic modification that Kripke makes to the QT is one that concerns natural language quantification more generally, and how speakers may employ quantifier phrases in linguistic communication. The idea that he puts forward is that the speaker's intentions in using an expression can provide the communicative act with a 'speaker's referent'. A speaker's referent is an individual that it tied to the utterance through the context and the fact that the speaker intended to say something about that individual.[60] In virtue of this, whilst the linguistic meaning of a definite description is quantificational and the proposition it is part of object-independent, the speaker may succeed in communicating something about a particular salient individual in virtue of that individual being the speaker's referent. Therefore, for any given definite description *d* the speaker's referent is the individual that the speaker intended to refer to by using *d* in a particular speech-act. The speaker's referent is contrasted with *d*'s semantic referent, which is the individual, who or whatever it may be, that is actually picked out by *d*'s linguistic meaning. The two often converge but do not necessarily have to. We can delineate the two by stating that the speaker's referent is created as part of pragmatics and the semantic referent, as its name suggests, is determined by linguistic meaning alone. It is the distinction between the speaker's referent and semantic referent that Kripke takes to be at the heart of the CAP.

Speaker's referents are determined as a form of generalized implicature that accompanies certain expression as a linguistic convention. We can return to some ambiguity instances to see how it operates. To being with, let us consider an instance of misdescription:

(12) Her husband is kind to her.

In the context, the speaker and audience observe a couple that they assume are married. If the man in question is not the woman's husband but is instead a friend, then the definite description has failed to correctly describe the individual. As stated in §1.2, the speaker may nevertheless

[60] The concept of a speaker's referent is related to generalized implicature as found in Grice (1989, 28; Kripke 1977, 263).

communicate something about the man if he is sufficiently salient in the utterance context. The speaker may succeed in communicating a statement akin to 'that particular man is kind to the woman in question'. In such an instance, the speaker succeeds in communicating something that diverges from its linguistic meaning. Kripke claims that this is enabled through the audience apprehending the speaker's referent. If the woman had a husband, but the husband was not present, then the actual husband would constitute the semantic reference. However, in this situation the communicative act depends upon the speaker's referent, not the semantic referent. Critically, all of this occurs without alteration to what is said.

The analysis extends readily to Donnellan's courtroom example. In this example there is a man, Jones, in a courtroom dock who is accused of Smith's murder and who is acting bizarrely. Two people are in the courtroom observing Jones' trail and one says to the other:

(13) Smith's murderer is insane.

Further to the details given, let us suppose firstly that Jones is innocent and that a man named Wilson is the actual murderer but has thus far evaded capture. The distinction between speaker's referent and semantic referent thus comes to the fore. In (13) the speaker's referent is Jones, whereas the semantic referent is Wilson. Therefore, the distinction is between "what *the speaker's words meant*" and what "*he* [the speaker] *meant*, in saying these words, on that occasion" (1977, 262). The semantic referent is meant to be captured solely by linguistic meaning and the speaker's referent is, unsurprisingly, captured by what we have previously termed speaker's meaning.

In order to justify the dichotomy between speaker's reference and semantic reference as a piece of general pragmatic machinery, as a generalized implicature, it must not be limited to particular uses of definite descriptions (1977, 265). Interestingly, Kripke states that the distinction holds with proper names in addition to quantifier phrases. Consider the following, two people are looking across a garden at a man named Smith who is raking leaves, both people mistake Smith for another man named Jones and consequently one speaker asks the other *what is Jones doing?* The other person replies with the response *Jones is raking leaves*. If we are interested purely with the semantic referent of *Jones*, then the response is false

(assuming Jones is not raking leaves elsewhere), whereas if we are interested in the speaker's referent, the intended referent, of the name *Jones*, then the response is true. The distinction is once again formed between the expression's linguistic meaning and the speaker's meaning that accompanies it.

The semantic referent of *Jones* is always the actual individual Jones irrespective of the speaker's intentions. However, the speaker's referent is determined in the utterance context through pragmatic machinery including the speaker's intentions in using the name *Jones*. We might understand the speaker's referent to enable the communication of a proposition that is not strictly expressed as part of what is said. As Kripke states, "clearly both participants in the dialogue have referred to Smith, and the second participant has said something true about the man he referred to if and only if Smith was raking the leaves (whether or not Jones was)" (1977, 263). In other words, we might take the speech-act to communicate something true insofar as we can understand the speaker's referent to enable an embellished speech-act. The response can be understood as being true if and only if the two are engaging with what is implicated as opposed to what is said.

The speaker's referent, as a piece of general pragmatic machinery, is described by Kripke as follows:

> Suppose a speaker takes it that a certain object *a* fulfills the condition for being the semantic referent of a designator, "*d*". Then, wishing to say something about *a*, he uses "*d*" to speak about *a*, he says "φ(*d*)". Then, he said, of *a*, on that occasion, that it φ'd; in the appropriate Gricean sense, he *meant* that *a* φ'd. This is true even if *a* is not really the semantic referent of "d". If it is not, then *that a* φ's is included in what he meant, but not in the meaning of his words. (1977, 263-264)

The employment of a speaker's referent in the exchange above enables the two members of the communicative act to discuss Smith even though the proper name, strictly speaker, refers to Jones.

Let us tentatively define some terms employed by Kripke:

(14) Speaker's Intentions

A speaker's intentions are those that the speaker has in using an utterance, and accompany it in order to achieve a particular communicative goal.

(15) Semantic Reference

The semantic referent of an expression ζ is the individual that is picked out by ζ's linguistic meaning, "[i]f a speaker has a designator in his idiolect, certain conventions of his idiolect determine the referent in the idiolect: that I call the *semantic referent* of the designator" (1977, 263).

(16) Speaker's Reference

The speaker's referent of an expression ζ is the individual that the speaker intended to refer to in using ζ, "[w]e may tentatively define the speaker's referent of a designator to be that object which the speaker wishes to talk about, on a given occasion, and believes fulfills the conditions for being the semantic referent of the designator" (1977, 264).[61]

It is the interaction of the three factors above that constitutes Kripke's account of the CAP. Kripke's idea is that a definite description *d* has a semantic referent, but that semantic referent is not rigidly denoted. Therefore, the proposition expressed by a sentence containing a definite description will be object-independent, and what is said will never depend upon a particular individual. Nevertheless, in a particular speech-act a speaker can employ *d* intending to refer to a particular individual. In such an instance, a speaker's referent is created, and the utterance can be seen as communicating something about that particular individual. We might say that the speaker expresses an object-independent proposition, but communicates an object-dependent one. The creation and subsequent

[61] Kripke is keen to point out that with certain terms we have to speak of the semantic referent on a particular occasion, "[i]f the designator is ambiguous, or contain indexicals, demonstratives, or the like, we must speak of the semantic referent on a given occasion. The referent will be determined by the conventions of the language plus the speaker's intentions and various contextual features" (1977, 263).

communication of the object-dependent proposition is therefore pragmatic.[62]

3.24

KRIPKE'S TEST

The linguistic proposal is that a given set of arguments, including at least quantifier phrases and proper names, express a semantic referent but may be used on occasion to communicate something about an individual not necessarily linked to the utterance through its linguistic meaning. Kripke devises a test that any semantic ambiguity thesis must pass. The test was invented to be applied to any counterexample put forward to linguistic proposals in general (1977, 265; Reimer 1998, 90-91). Consider a linguistic proposal **P** and a counterexample **C**, **C** is a proper counterexample to **P** iff it is not possible to hypothesise a language **L** wherein **P** is stipulated to be true and **C** still occurs. Applying this to the foregoing discussion we get the following test. Consider a hypothesised language, as similar to English as possible, wherein the Russellian QT is stipulated to be correct, then within this language is it possible to imagine Donnellan's distinction arising?

The idea goes as follows, let us assume that within a hypothetical language, which we will call Russell-English, definite descriptions are stipulated to be paraphrases of a Russellian logical form.[63] Therefore, when a speaker utters (17) it is stipulated to have the linguistic meaning associated with a Russellian paraphrase:

(17) Her husband is kind to her.

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[62] It is worth noting that the above account of speaker's reference is not uncontroversial. Recanati and Bezuidenhout both defend the view that we do not reach the level of what is said until we have enriched the linguistic meaning of the utterance with speaker's meaning, including speaker's reference (Recenati 2004, 90; Bezuidenhout 1997; 2002).

[63] Kripke's test introduces three strengths for the Russellian languages, weak, intermediate, and strong. The first states that the Russellian semantics is stipulated to account for the semantics of definite descriptions, the second states that definite descriptions are abbreviations or paraphrases of their Russellian analysis, and the third states that definite descriptions are banned from the language and instead the Russellian paraphrases are used in their place. The test is meant to apply to each, but if it succeeds in the strong Russellian language, i.e. if this language exhibits the ambiguity, then test subsequently holds for the intermediate and weak languages (1977, 265).

Does the CAP occur in an utterance of (17) in Russell-English? According to Kripke it does. For instance, given an utterance of (17) in Russell-English there is no reason to believe that a referential use would be banned. Recalling the instance of misdescription that we have employed in relation to (12) previously, Kripke states that speakers of Russell-English are "no more infallible than we" and like normal English the speaker will use (12) to refer "precisely because *they think, though erroneously, that the Russellian truth conditions are satisfied*" (1977, 265-266). Therefore, the story goes that Russell-English retains a referential use of definite descriptions, even though it has a Russellian semantics for such expressions.

The test for Russell-English is meant to illustrate that an expression stipulated to have a Russellian semantics may still be used to create an object-dependant, or singular, proposition. In addition to definite descriptions, other expressions, including generalized quantifiers, can likewise be used to make object-dependent propositions. According to Sainsbury (1979), Neale (1990, 87-88), and Reimer (1998, 92) this fact is meant to provides further support to Kripke's test, and to show that Donnellan's distinction is not semantic.[64]

We can illustrate the wide range of expressions that Kripke applies his theory to through a further quantifier phrase. As an example, consider a situation where three people are at a party and one person, who we shall call Smith, has brought an expensive bottle of champagne. Towards the end of the night Smith intends to open the bottle only to find that it has vanished! Everyone present, except for Smith, knows that Jones drank the champagne. The following exchange takes place between Smith and another party-goer, who we shall call Wilson:

(18) Smith: What happened to the champagne?

Wilson: Well, somebody [gestures towards Jones] must have drunk it.

Smith: Typical Jones.

In Wilson's retort to Smith he succeeds in communicating an object-dependent proposition about Jones, which is illustrated by Smith's final

[64] It should be noted that Reimer does defend the view that definite descriptions *are* ambiguous, but not in the manner that Donnellan suggested (1998, 93).

reply. Nevertheless, accompanying the quantifier phrase *somebody* is a gesture and the utterance will most likely involve an exaggeration of the quantifier's pronunciation, an exaggeration in its intonation. These features of the utterance are crucial if such examples are meant to strengthen the conclusions reached through Kripke's test.

The problem with making the claim that Donnellan's distinction can be applied to any quantificational expression is that with respect to generalized quantifiers such as that in (18) the speaker must add alterations to the quantifier's standard intonation and/or include an act of ostension. None of this is necessary with referential uses of descriptions. Taking (18) as an example, we can see that the object-dependent proposition is only communicated with the help of the gesture and assumed intonation without which it is unlikely that Smith would give the same response. It might be argued that this fact is unimportant, however intonation is something that is settled through the derivation of morphophonemic information, which is itself a reflex of grammatical structure that underlies Wilson's utterance in (18). These facts are not recognised by those that liken Wilson's utterance in (18) with referential uses of descriptions. The distinct phonetic marking is a direct result of an underlying morphophonemic distinction between (18) as used to communicate an object-dependent proposition, and a standard use. The implication of this is that the pragmatic machinery that Kripke takes to be at work across the board with argument expressions may not be a unified phenomenon, and moreover may not be responsible for the genesis of the ambiguity in the first place.

A further issue with Kripke's test is the legitimacy of the core claim that (17) expresses an eternal context-independent sentence as captured in the Russellian paraphrase. Contextualism, for instance, would take any instance of (17) to be semantically underdetermined and lacking truth-conditional content at all prior to contextual embellishment (Recanati 2004, 84; Bezuidenhout 2002, 205). We cannot therefore stipulate the Russellian semantics as capturing the fully specified truth-conditional content that any utterance of (17) expresses. Kripke's test is productive to the debate but it depends upon the core tenet of literalism, namely that for every sentence there is a context-independent proposition that it picks out that fully specifies truth-conditional content. It is dependent upon an expression-centred conception of language. For contextualism, the test fails to

materialize. Nevertheless, it is obvious from the test that Kripke's theory is meant to be a general piece of pragmatic machinery whose presence enables object-dependent propositions to be communicated with expressions whose semantics was not itself object-dependent.

Kripke's modification to the Russellian QT initiated the modern debate on descriptions and the nature natural language semantics more generally. The modification introduced a foundation from which the distinction between linguistic meaning and speaker's meaning (including the context of utterance, speaker's intentions, implicatures, and general pragmatic machinery that accompanies communication) could be applied to definite descriptions. We can now briefly summarize the modified Russellian QT:

(19) *The Russellian Theory of Descriptions

i. The linguistic meaning of a proposition *p* containing *d* is quantificational, object-independent, and fully specifies truth-conditional content and 'what is said'.

ii. In a given speech-act the semantic referent of *d* is derived through its linguistic meaning alone, but accompanying the speech-act is pragmatic machinery that creates a speaker's referent.

iii. A speaker can communicate an object-dependent proposition using *d* through the speaker's referent, which depends upon the speaker's intentions in using *d* and the context in which *d* is used.

iv. The semantic referent and speaker's referent often converge but do not necessarily have to.

v. From (*iii*)-(*iv*) the genesis of referential uses of definite descriptions, including misdescription, is pragmatic.

vi. The pragmatic machinery employed in establishing a speaker's referent is a generalized implicature that accompanies a wide range of expressions including quantifier phrases and proper names.

The modified Russellian theory contains the central claims made by those who defend QTs. As is clear from the description, a Russellian solution to the CAP is that is has its genesis in pragmatic machinery that accompanies the linguistic meaning expressed in communication. We will provide a detailed Russellian account of all three of the ambiguity problems shortly, but before we do that we must consider the second and final modification to the Russellian QT provided by Neale, which was developed in order to bring the theory in line with linguistic theory.

3.3

NEALE

It is with the introduction of the CAP, and Kripke's proposed solution to its genesis, that we observe the beginning of the modern era in the descriptions literature wherein the theory began taking natural language use seriously. It was observed that the Russellian QT can be understood as a form of semantic literalism, and retained the Russellian paraphrase as the linguistic meaning of sentences containing definite descriptions. Nevertheless, there remain problems for the Russellian. The first of which is that the Russellian QT, as currently sketched, fails to credit grammatical structure with any influence on the semantics of expressions. This is not a problem in principle, but it does require an explanation as grammar is elementary in the composition of natural language expressions and therefore potentially impacts truth-conditional content. Furthermore, there remain three further problems for the Russellian including misdescription, incompleteness, and referential anaphora. We have already described one Russellian account to misdescription, but we will now analyse Neale's unified solution to all three problems.

The discussion of Neale (1990; 2004; 2005a; 2005b) will begin with an outline of the set of expressions he takes the Russellian account to apply to, which will help us to further understand the Russellian solution to all three ambiguity problems. Next we will look at how Neale sets up the semantics/pragmatics distinction, which will form backbone of his Russellian solution to the ambiguity problems as well as the problems of misdescription, incompleteness, and referential anaphora. Following this, we will turn to analyse Neale's attempt to streamline the theory with the syntactic structure of DPs. At this point it will be observed that the strategic

modification that Neale provides is grounded in a lexicocentric understanding of compositional semantics. Furthermore, we will criticize the theory for failing to account for details of DPs that may impact how we look at the semantics of arguments and definite descriptions specifically. It is the contention of this thesis that a more thoroughgoing analysis of DPs raises problems for the lexicocentric version of the Russellian QT that Neale creates.

3.31

THE VARIETIES OF DESCRIPTIONS

In the discussion so far we have employed a limited range of definite descriptions. We have employed uniquely identifying descriptions such as *the present King of France* and possessives such as *Smith's murderer* and *her husband*.[65] If we bear in mind that the Russellian theory of descriptions is meant to capture all possible uses of definite descriptions, then there remain a multitude of other expressions that it should likewise apply to. The theory is meant to cover all instances of expressions beginning with the definite article *the* and all instances of expressions that are grammatically derived from expressions beginning with the definite article. The first positive in Neale's defence of the Russellian theory is that it extends it to cover all expressions commonly held under the umbrella term 'definite description'. Neale claims that the Russellian theory applies equally to, at least, each of the following (1990, 10):

(20) *i*. Plural descriptions (*the players*).

ii. Numberless descriptions (*whoever shot Smith*).

iii. Possessives (*Smith's murderer*).

iv. Indexical descriptions (*My mother*).

v. Relativized Descriptions (*The father of every girl*).

vi. Derived nominal constructions (*Smith's departure*)

vii. Gerundive nominal constructions (*My leaving in such a hurry*).

[65] It is worth noting for purposes of accuracy that Russell does extend his theory of descriptions to plurals in PM *30 (Neale 2005a, 828; PM 1910/1962, 232-237).

viii. Anaphoric descriptions

ix. Epithets

Neale states that to capture facts surrounding all of (20*i*) to (20*vii*) within a single theory of descriptions would involve looking at how the theory "interacts … with theories of indexicality, ellipsis, syntactical structure, anaphora, modality, tense, and attitude reports" (1990, 10). The mention of syntactical structure is one often absent from the work on descriptions and it illustrates that Neale is intensely keen to employ as much data from natural language as possible.[66] The focus on natural language is a welcome advance on Russell's own theory, which, as stated before, was mainly interested in the metaphysical commitments of parts of logic. This is to Neale's credit as much linguistic data was largely ignored with respect to definite descriptions, or regarded as subservient to facts about logic, prior to *Descriptions* (1990).[67]

3.32

THE SEMANTICS/PRAGMATICS DISTINCTION II

Neale echoes Kripke (1977), Grice (1989), and others (Bach 2004b; Salmon 2004) in accounting for the referential uses of definite descriptions through pragmatic machinery. Neale employs a distinction between "the *proposition expressed* by an utterance and the proposition (or propositions) the speaker seeks to communicate by it, what we might call *the proposition(s) meant* by the speaker" (1990, 62). It is a parallel distinction to that made between semantic reference and speaker's reference. Neale defines the distinction as being that between "the genuinely semantical features of an expression ζ and those features of the use of ζ that issue, at least in part, from non-semantical facts about the context of utterance and from constraints governing rational discourse" (1990, 62). But what does Neale have in mind by semantics? And, critically for our purposes, what role does syntax take in this treatment of semantics?

Neale defines semantics and the role of syntax as follows:

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[66] We will use the terms syntactic structure and grammatical structure synonymously unless otherwise indicated.

[67] This statement is aimed at the philosophical literature as opposed to linguistics literature, which was more amenable to work in syntactic theory.

> Flushing out the modal: a semantic theory for a language *L* will provide, for each sentence *X* of *L*, a blueprint for (a template, a schematic or skeletal representation of) what someone will be taken to be saying when using *X* to say something. The blueprint associated with *X* is its semantics, and the set of such blueprints, one for every sentence of a language *L*, is the semantics for *L*. (The study of these blueprints is also called semantics. The study of the role of word meanings is called lexical semantics; the study of the role of syntax is called compositional semantics.) (2004, 85)

As we can see the study of semantics is multifaceted, it contains lexical semantics (which is the study of the meaning of words in isolation from sentences they may partake in) and compositional semantics (which is the often formal treatment of the manner in which the semantic-types of the lexical items in the sentence fit together).[68] Compositional semantics is thus syntactic. However, we should not immediately understand the term syntax here as being that as analysed by generative grammarians. Instead, the term is employed simply to stand for the combinatorial nature of logical form. Furthermore, semantics provides skeletal blueprint for meaning in natural language.[69]

As for pragmatics Neale has the following to say:

> [a] pragmatic theory will explain how interpreters identify what a speaker means by uttering a sentence (or sentence fragment) *X* on a given occasion given (at most) what a semantic theory has to say about *X*… a pragmatic theory will explain how interpreters identify what *A* said and implied by uttering *X* on that occasion given (at most) what a semantic theory has to say about *X*. If a pragmatic theory explained only how interpreters identify what *A* implied given (at most) what the speaker said as 'input', a gaping hole in our taxonomy of theories would appear. (2004, 85)

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[68] We discussed compositional semantics in detail in §2.2

[69] It should be noted that we agree with Neale that compositional semantics is involved in providing a skeleton or blueprint for natural language meaning. However, we disagree as to how this skeleton should be account for. In §5.3 we will argue that grammar itself is responsible for this skeleton, and thus grammatical derivations can be understood as providing a grounding for the skeletal aspects of semantics. Furthermore, it will be argued that the concept of syntax employed in logical form is superfluous if one takes it to uncover an underlying mental reality.

Pragmatics thus has to do with linguistic communication and the interaction of semantic content with wider aspects of a speech-act, in particular what a speaker meant in a given speech-act. A competent speaker of a language will be competent in both the semantics of a language *L* and the pragmatics involved in using *L*.[70] In interpreting a given sentence *S*, the competent speaker identifies both 'what is said' and 'what is implicated'.

These definitions feed into the distinction made between the proposition expressed by a given sentential expression ζ and the proposition the speaker meant in using ζ. In accordance with literalism, Neale distinguishes between an expression-type and a particular token use of an expression, and states that definite descriptions, as an expression-type, are semantically quantificational.[71] Referring back to §2, the expression-type is associated with the linguistic meaning. Therefore, in using a definite description referentially one employs an expression ζ that is of a quantificational semantic-type, which in order to be interpreted correctly is supplemented with 'non-semantic facts'. The non-semantic facts partly comprise the meaning that the speaker wishes to convey in using ζ. Herein lays Neale's account of the genesis of the three ambiguity problems. The proposition expressed is quantificational, whereas the proposition meant may be referential. Once again, therefore, the ambiguities are enables through pragmatic machinery accompanying the expression.

Neale accepts that the semantic values of certain expressions are impacted by the context of utterance, but states that this is codified to the expression's linguistic meaning rather than the speaker's meaning. Therefore, just as with Kripke, Neale looks to be defending a form of indexicalism. Consider (21) for instance:

(21) I am tired.

According to Neale, the linguistic meaning of *I* is constant across contexts but the semantic value may vary depending upon who utters it (1990, 68).

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[70] Neale states that a pragmatic theory should indeed be universal across languages (2004, 85).

[71] This point harks back to what we have said previously in the notion of an eternal sentence *S* that is associated with an actual utterance of *S*. Take a particular expression ζ, the expression-type is the unchanging semantic category that is associated with it, and each token use of ζ has this type as its semantic-type. For details, see §2.2.

The semantic value changes from use to use thereby providing distinct propositions for each utterance of (21). In virtue of providing distinct propositions, each utterance has distinct truth-conditions. The sentence in (21) fulfils the conditions of being referential as the truth-conditions will be dependent upon the particular object that is picked out in both actual and counter-factual situations. Critically, all of this is established as part of (21)'s linguistic meaning.

Accordingly, whilst (21) is semantically referential, (22) is not:

(22) The table is covered with books.

At first glance this appears counter-intuitive. For instance, the definite description *the table* is context-sensitive and its semantic value will change depending upon the context of utterance, just like an indexical. However, Neale states that an utterance of (22) nevertheless has the semantics 'there is one and only one object that is both a table and covered with books'. It will create a relation between 'being a table' and 'being covered with books' and state of that relation that only one unique individual satisfies it. In other words it remains quantificational. If one retains this Russellian paraphrase, then the denotation of *the table* can change without alteration to the sentences truth-conditions, but this is not to say the truth-maker will remain the same. When the Russellian paraphrase is accepted the referential uses must therefore emerge from outside of the semantics. The distinction now becomes prominent, as whilst it holds that the proposition expressed is not object-dependent the individual it picks out will still be part of what the speaker meant and intended to communicate in saying (22), they were trying to communicate something about a particular table.

The same point can be made through considering the truth makers for (21) and (22). Neale wants to say that with (21) an object *x* picked out by the indexical in a particular utterance is tied inherently to the propositional content. In virtue of this, the particular object *x* is a necessary part of the truth maker for (21) across all possible worlds of evaluation. Conversely, given a particular utterance of (22) it may on one occasion denote the table *y* and hence *y* will act as part of the truth maker for (22), but this need not be the case, for instance another table *z* might on another occasion make (22) true. In the *y* case the speaker may communicate a proposition through using (22) that has to do with *y* and hence *y* is part of what the speaker

meant, but the proposition expressed is no more to do with *y* than it is to do with *z*. The distinction at work gives Neale the basis for his account of the CAP as being pragmatic and that this pragmatics has no impact on the semantic content/linguistic meaning of a given definite description.

Let us combine the distinctions made by Kripke and Neale into our framework distinction between linguistic meaning and speaker's meaning:

(23) Kripke's distinction between semantic reference and speaker's reference, and Neale's distinction between the proposition expressed and the proposition meant, can be generalized as a distinction between linguistic meaning and speaker meaning. For instance, if a property *P* of a given expression ζ is part of ζ's linguistic meaning, then it is semantic, it is part of the semantic skeleton/blueprint, and if *P* is part of what a speaker meant in using ζ, then it is pragmatic.

We can now relate the two theories neatly with our work on the semantics/pragmatics framework provided in §2.

3.33

THE RUSSELLIAN PARAPHRASE

The linguistic meaning of a sentence containing a definite description, its semantic skeleton or blueprint, is a Russellian paraphrase. Nevertheless, Neale is keen to highlight that it might be argued that the paraphrase is so vastly in contrast with the surface syntax of definite descriptions that it cannot be accurate.[72] For instance, a sentence such as *the father of Charles II*

[72] Surface syntax is a term reserved for the grammatical and morphophonemic structure that is expressed in a particular speech act (including written and sign language). The concept of surface syntax is to be taken in contrast with deep syntax. The contrast is born out of the fact that one and the same proposition can be expressed through varying surface syntax. For instance, *John kicked the football* can be expressed in two distinct ways:

(*i*) John kicked the football.

(*ii*) The football was kicked by John.

Whilst the surface syntax is distinct, the first being active and the second passive, they both exhibit the same proposition with *John* as the logical subject and *the football* as the object. The distinction originates in Chomsky (1957; 1965), wherein Chomsky took grammatical structure to operate over two levels, the first (deep syntax) organized the thematic structure

(F) *was executed* (E) receives the paraphrase in (24) and the formalization in (25):

(24) It is not always false of *x* that *x* begat Charles II and that *x* was executed and that 'if *y* begat Charles II, *y* is identical with *x*' is always true of *y*'.

(25) $\exists x(F(x) \& \forall y(F(y) \rightarrow y=x) \& E(x))$

Streamlining the view with syntactic structure is a difficult task, but Neale takes the unwieldy paraphrase to be inessential to the Russellian QT. It is not necessarily the case that one must retain this paraphrase in order to defend the view that definite descriptions express a Russellian semantics (1990, 39). The alternative is to take notice of the natural language syntax and to use it to inform the formalism, thereby avoiding the criticism that the theory fails to match surface syntax.

In order to understand the criticism of the Russellian paraphrase Neale invites us to consider a standard quantifier phrase, for instance *all tigers* (T) *are dangerous* (D) and a first-order formalization of it in (26):

(26) $\forall x(T(x) \longrightarrow D(x))$

At least two parts of the sentence *all tigers are dangerous* fail to be captured by the formalization. The first is that within the formalization there is nothing corresponding to the nominal phrase *all tigers*, and the second is that it involves a sentential connective even though it does not contain two further sentences (1990, 40). The same problem carries over to (25) as nothing in the logical form corresponds to the nominal *the father of Charles II* and once again it contains sentential connectives.

Neale proposes to retain a nominal-like structure in the logical form of quantifier phrases and thus definite descriptions. The idea is one mirrored in Heim & Kratzer's compositional semantics (1998). The process is as follows, if φ is a well formed formula then [Dx: φ] is a well formed formula where Dx binds "any free occurrences of *x* in the formula with which it combines [namely φ] to form a unary quantifier" and if ψ is a well formed formula then [Dx: φ](ψ) is a well formed formula where "[Dx: φ] binds any

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of the sentence and the second (surface syntax) is formed through transformation that create the sentence as perceived on a particular occasion.

free occurrences of *x* in the formula with which it combines [namely ψ] to form a formula" (1990, 42).[73] In less technical vocabulary, given any determiner or quantifier (for instance *the*), it attaches to a formula (for instance the bare noun phrase *man*, to create *the man*) and binds any free variables in that formula to create a restricted quantifier phrase. Following this, the quantifier phrase attaches to a formula (for instance the verbal phrase *is tall*) and binds any free variables in the verbal phrase to create a further completed sentential formula *the man is tall*.

Employing this new formalism for a sentence such as *the F is G* we get the following:

(27) [The x: Fx](Gx)

Within Russell's theory of descriptions the determiner *the* is a quantifier of a special sort in that it asserts uniqueness. The new formalism of Neale's is required to capture this fact if it is to avoid losing the insights of the Russellian theory. Neale introduces the following truth-clause in order to do this:

(28) [The x: Fx](Gx) is true iff $|\mathbf{F} - \mathbf{G}| = 0$ and $|\mathbf{F}| = 1$

The idea behind this move of Neale's is that the formalism to the left of the truth clause respects the surface syntax of sentences containing definite descriptions, whilst overall (28) stays true to the Russellian semantics and the problems it was designed to solve (1990, 45). As we can see, the notion of the definite description as the subject of the sentence is captured by [The x: Fx], which forms a restricted quantifier, and the notion of uniqueness that is central to singular definite descriptions is captured by the truth clause that defines the formalism.

The formalism that has been adopted extends naturally to further forms of descriptions listed in (20), and it does so without recourse to the unwieldy Russellian paraphrase. For instance, Neale illustrates that we can now give an account of plural definite descriptions such as *the Fs are Gs*:

(29) [The x: Fx](Gx) is true iff $|\mathbf{F} - \mathbf{G}| = 0$ and $|\mathbf{F}| => 1$

Numberless descriptions such as *whoever shot JFK*:

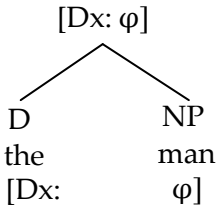
[73] A similar process is outlined by Heim & Kratzer (1998, 145-146).

(30) [who x: Fx](Gx) is true iff $|\mathbf{F} - \mathbf{G}| = 0$ and $|\mathbf{F}| = \geq 1$

As well as descriptions containing relative clauses (*the man who loves Mary is insane*), relativized descriptions (*the mother of every boy is proud of him*), possessives (*Smith's murderer*), and so on (1990, 46-47). The theory of descriptions, as modified by Neale, now becomes a "more general theory of natural language quantification" (1990, 46). Two positives emerge from this theory, the first is that it arguably captures the syntax of natural language better than the Russellian formalism, and secondly that it unifies many forms of quantification that share related properties (including the role of restriction on the quantifier it attaches to).

The formal structure [Dx: φ] is meant to capture the structure of a DP and its formation through the composition of D and an NP complement. The DP is syntactically associated with the argument places of sentences:

(31)

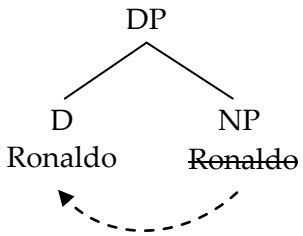


The syntax of DPs as described here mirrors the process whereby a definite description becomes a restricted quantifier phrase. The determiner position holds the quantifier and the complement (NP or whatever else occupies that position) restricts the quantifier. The construction of a DP involves the D position being merged to its complement, in this instance NP, and this creates the restriction on the quantifier. Returning to a type-based analysis we can label D in (31) of type <<e, t>, <<e, t>, t>>, and the restricted quantifier phrase at DP as type <<e, t>, t>. Distinct definite descriptions employ distinct terms occupying D. However, in each case a process of restriction takes place on the quantifier. This is the first move in Neale's theory that, arguably, takes natural language syntax seriously (2004, 119).

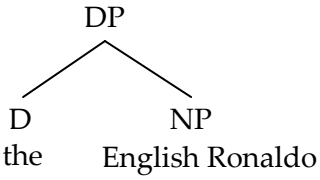
It is a positive step for the descriptions literature to consider how the theory interacts with further aspects of the faculty of language, and in particular grammar. Nevertheless, it is not the case that the formalism is explained in terms of grammar. In other words, there is no explanation of why such syntactic positions are in fact amenable to this specific semantic

formalism. The problem is that the D position is no closer related to quantificational determiners than it is to, for instance, rigidly referring terms such as proper names. Furthermore, the case of proper names seems to suggest that the semantics of arguments might be derivative from the grammar itself. Take for instance the two sentences *Ronaldo is tall* and *the English Ronaldo is tall*. Each contains an instance of the lexical item *Ronaldo* yet it is the grammatical structure that dictates its interpretation. Two distinct DP structures can be given for the arguments in each case:

(32)



(33)



In (32) *Ronaldo* would be interpreted as a proper name, whereas in (33) it is interpreted predicatively.[74] The two instances of the term *Ronaldo* therefore receive a semantic interpretation based upon the syntactic positions that they occupy as opposed to their lexical entry (Longobardi 1994; 2005).[75]

Furthermore, if we associated the D position with a quantifier expression, then we fail to explain why (32) does not receive a similar analysis. As is visible from the above examples, the D position is no more closely related to the [Dx:] part of the quantificational formalism as it is too rigid designation. A straightforward answer may be offered here, which would be in line with Neale's account, which is that it is the lexical entry for the word that dictates its semantic contribution. In other words, it isn't the case that D dictates the semantic contribution of the article but it is the articles

[74] It is worth noting that Neale does not explicitly recognize proper names as being in D, instead choosing to place them in N (2004, 118), contrary to much linguistic research (Longobardi 1994; 1996; 2005; Semenza, Longobardi, Cocolo, & Granà 2001; Roberts 2001, 140; Alexiadou, Haegeman, & Stavrou 2007, 203; Zamparelli 2014, 155)

[75] The name *Ronaldo* in (32) will have undergone movement from N into D indicated by the arrow, which is what forces the rigid reading. We will return to this point in §5.34.

lexical entry and the semantic-type it carries in that entry. Therefore, as *Ronaldo* and *the* have distinct lexical entries with distinct semantic-types, their semantic contribution is likewise distinct. It is an answer such as this that we have been calling lexicocentric, and it comes with problems.

We can see from the distinction between (32) and (33) that the lexical entry for *Ronaldo* fails to dictate its semantic contribution in all instance of its use. In (32) it is rigid and in (33) predicative. However, these differences are neatly explained if we associated the semantics of *Ronaldo*, as an argument, as being derivative from its underlying grammar. Words that occupy N are predicative, and words that undergo N-D movement are rigid (Longobardi 1994; 2005). Additionally, were we to rely on the lexical entry forming the two uses we would essentially posit grammatical, compositional, information in the lexical entry, which would be contrary to how many linguists view the lexicon (Marantz 2000; 2006; Borer 2005; Boeckx 2008). It is therefore worth questioning whether we can provide a lexical account of the semantics of the definite article either. The lexical entry for the article *the* would thus contain grammatical information, and the semantic-type we posited would thus be structural. Therefore, it appears as if Neale's attempt to streamline the Russellian paraphrase with grammar is a case of backward engineering. The lexicocentric view, that is demanded to explain the distinction between (32) and (33), is thus tacked onto a grammatical category. There is nothing special in the analysis that provides (31) with a particularly strong syntax/semantic mapping in the same way that an extensive account of DP and the configurations it enables might. The tie between the quantificational semantics and a DP thus looks stipulated. An alternative would be to take the topology of DPs to create a range of semantic interpretations for arguments, what we have been calling 'forms of reference', which the lexical items placed within a certain configuration end up taking on. We will return to provide a theory based on such an idea in §5.3.

The interesting part about Neale's modification here is that it acknowledges that both grammar and semantics are generative, compositional, engines for linguistic structure. Through linking the Russellian theory with grammar as in (31) Neale is able to illustrate how semantic structure might be generated in line with grammar in order to retain a nominal construction in the logical form of definite descriptions. Nevertheless, as

we have stated it might underestimate the role of grammar in constructing meaning in the first place. Furthermore, it is open to the counter that D can be associated with both referential and quantificational structures. For instance, one might state that D creates a referential semantics and that the NP simply restricts the act of reference. We will see in §4 that these options have been explored. In order to avoid stipulation as to the contribution of DPs to compositional semantics we must analyse them more closely. Nevertheless, for the time being we will continue to analyse Neale's version of the Russellian QT.

3.34

APPLYING THE RUSSELLIAN THEORY

In what follows, let us assume that a modified Russellian theory provides the correct semantics for definite descriptions and see how far it takes us in answering three common problems for such theories: misdescription, incompleteness, and referential anaphora. Following Evans (1982), Neale outlines two ways in which definite descriptions can be used referentially. The first takes definite descriptions to function as names, and the second takes definite descriptions to function as demonstrative expressions. The following pairs of sentences outline the two distinct functions (1990, 85-86):

(34) The manager of Manchester United is Dutch.

(34*) Louis van Gaal is Dutch.

(35) The desk is covered with books.

(35*) That desk is covered with books.

Neale analyses the example in (34) as follows, if both speaker and audience are aware that Louis van Gaal is the manager of Manchester United, then one of the propositions meant by an utterance of (34) is the object dependent proposition in (34*). In a likewise fashion, an utterance of (35) together with an appropriate gesture will also communicate an object-dependent proposition to the audience, which could have equally been communicated with (35*). The question remains as to whether, in virtue of the fact that the definite descriptions in (34) and (35) can be used to communicate the same object-dependent propositions as (34*) and (35*) they are semantically referential? Neale thinks not.

One reason for this is that it is possible to communicate object-dependent propositions with standard quantifier phrases such as *everyone* and *someone*. For instance, Wilson's reply in (18) repeated here as (36) communicates the same proposition as (37):

(36) Smith: What happened to the champagne?

Wilson: Well, somebody [gestures towards Jones] must have drunk it.

Smith: Typical Jones.

(37) Jones must have drunk it.

The idea is that, as in (34) and (35), the speaker succeeds in communicating an object-dependent proposition using an expression that is semantically quantificational. Following this observation, the explanation of the referential use of definite descriptions is a general observation about how pragmatic machinery embellished natural language quantification. It is worth noting at this point what we said earlier when discussing Kripke, the quantifier phrase in Wilson's retort is likely accompanied by distinct intonation effects (or an ostensive act), which hint at a non-standard, non-canonical, use of the phase and therefore potential grammatical differences. Nevertheless, using the idea of pragmatic machinery, Neale sets to work diffusing some common problems often raised against Russellian theories. According to him, it is the superior manner in which the Russellian QT tackles these problems that gives the theory superiority as a theory of descriptions.

3.341

MISDESCRIPTION

The CAP raises the problem of misdescription. Recall the courtroom context wherein (38) is uttered:

(38) Smith's murderer is insane.

In uttering (38) the speaker attempts to communicate the object-dependent proposition that Jones is insane. Assuming Jones is insane, it is intuitive to take the speaker to have said something true even though the descriptive content of (38) is not met. In Neale's words "it is the object *S* [the speaker]

wishes to convey something about rather than the descriptive condition used to get at this object that is of semantical relevance" (1990, 91). Following from this observation, is it correct to take such instances as undermining a Russellian QT?

Neale states that taking instances of misdescription to support a referential semantics analysis "relies on the existence of a clear intuition that the proposition expressed is still true despite the fact that neither Jones nor anyone else satisfies the description" (1990, 91). Do we in fact have a clear intuition that what the speaker said was true if Smith was not murdered? Donnellan's point was that because the speaker intended to speak of Jones in using *Smith's murderer* they must have said something true. It is this intuition that is questionable. For, if it is not the case that there is a particular individual that killed Smith, how can we say that individual is insane, and, more pertinently, how can we say that what the speaker said, rather than simply implicated, was true.

There are two intuitions at work here, which need to be reconciled. The first is that in some sense the speaker said something true if the speaker succeeded in communicating something about Jones, namely that Jones is insane. The second is that in some sense the speaker said something false, namely that there is an individual *x* such that *x* killed Smith and *x* is insane. According to Neale the Russellian has a straightforward answer to this question. It is as follows:

> [t]he proposition expressed by an utterance of 'the *F* is *G*' is still descriptive, but the speaker may exploit the fact that both speaker and hearer are willing to entertain the idea that some particular individual *b* is uniquely *F* in order to communicate an object-dependent proposition about *b*. Again, the proposition that *b* is *G* may well be part of what is *meant* but it is not the proposition expressed, nor is it implied by it. Applied to Donnellan's example, the proposition expressed by my utterance of 'Smith's murder is insane' is false; but the proposition I intended to communicate is true (if Jones is indeed insane). (1990, 92)

The Russellian answer is thus that (38) is false in terms of its linguistic meaning, what is said, but may be true in terms of its speaker's meaning,

what is implicated.[76] The two intuitions are thus captured. Therefore, Neale concludes that the Russellian "has the edge" in the case of misdescription.

It is important to note for the thesis that we will offer later that instances of misdescription may well be outside the explanatory remit of a grammatical theory of meaning. The syntax of natural language is blind as to whether the structure it creates in an utterance will misdescribe an individual, event, and so on, in the context. For instance, from the point of view of grammar, (39) and (40) are identical:

(39) Smith is raking the leaves.

(40) Jones is raking the leaves.

If a speaker uses (39) to refer to Jones, then grammar has no impact on this, similarly if a speaker uses (40) to refer to Smith. The idiosyncratic information carried by the lexical entry for *Smith* and *Jones* is thus not constrained by grammar. The grammatical theory of meaning is thus reduced to purely compositional aspects of semantics. However, this should not speak against the theory. For instance, it is not the case that formal semantics, as described in §2.2, has any impact on the distinction between (39) and (40) either, insofar as it provides a skeletal blueprint for its compositional semantic structure. We admit therefore that pragmatic machinery may well be involved in the interpretation of idiosyncratic information carried by lexical items. The grammatical thesis (GT) that we will provide will argue that grammar alone determines the semantics of arguments insofar as they are referential or quantificational, insofar as they exhibit a strong or weak form of reference, but it does not prevent instances of misdescription or spurious acts of reference. Therefore, we will argue that whether (38) is semantically referential or not, whether it is referential in its truth-conditional contribution to what is said, is a matter of its underlying grammar (§5.3, §5.4, and §6.1), but we will not rule out potential instances of misdescription where pragmatic machinery may enable idiosyncratic information to be put aside for the purposes of communicative efficacy. However, we will state that where an argument's grammar dictates that it is semantically referential the descriptive content

[76] The passage from Neale states that the object-dependent proposition is not implied by the linguistic meaning of (38). However, what Neale means is that it is not a direct semantic implication of it.

plays second fiddle to the referential interpretation (an example of such an argument will be detailed in §6.11 wherein we discuss deictic descriptions).

3.342

INCOMPLETE DESCRIPTIONS

Another issue often raised against the Russellian is that of incompleteness. The problem of incompleteness has to do with how a Russellian QT deals with definite descriptions that are not uniquely identifying. For the most part, when we use definite descriptions they fail to uniquely identify their referents. According to Wettstein, there is good reason to suppose that only by positing a semantic ambiguity can we begin to explain incomplete descriptions (1981; 1983). Consider the following sentence:

(41) The desk is covered with books.

A Russellian analysis of the linguistic meaning captured in (41) is that it states there is exactly one unique desk that is covered with books. Nevertheless, no object uniquely satisfies the descriptive content *desk*, there exists more than one desk in the world. However, providing (41) with a referential semantics avoids the problem as it does not uniquely quantify over the domain. Instead, under a referential analysis the descriptive content provides the speaker and audience with enough material to pick out the particular desk in the context. The problem for the Russellian is how to account for such uses without granting a semantic ambiguity.

Neale's account is once again concerned with a more general account of natural language quantification. Incompleteness is not something special to referential uses of descriptions. It exists in non-referential uses and quantifier phrases more generally. In virtue of this Neale claims an "account of the phenomenon [of incompleteness] cannot be based on a referential interpretation" (1990, 101). According to Neale, the best option available to the Russellian is to take quantifier phrases to be elliptical for completed expressions and to state that the elliptical material is "recoverable from the context of utterance", through what are termed 'contextual coordinates' (1990, 96). Neale terms this form of ellipsis

'pragmatic', and contrasts it with linguistic, or syntactic, ellipsis (2004, 83).[77] Importantly for Neale, appealing to these two factors (ellipsis and contextual coordinates) requires no ad hoc addition to the Russellian theory. For, in virtue of the fact that incompleteness is a widespread phenomenon, "contextual coordinates and ellipsed material are independently required by any adequate theory of natural language quantification" (1990, 101). Neale's theory is that incompleteness is a general phenomenon, it is present across a wide range of quantifier phrases, and in virtue of this the solution can be given without recourse to defending a semantic ambiguity.[78]

We can illustrate ellipsis through taking (41) to be elliptical for (42):

(42) The desk [in the seminar room in Durham's philosophy department at time *t*] is covered with books.[79]

The elliptical material in the brackets provides (42) with a unique desk, which is what the Russellian QT seemingly demands for the sentence to be true. The same carries over for standard quantifier phrases as in (43):

(43) Everyone left the party at 8pm.

(44) Everyone [who attended the party at *x* at time *t*] left at 8pm.

In other words, when a phrase is incomplete it is because the material that would make it complete has been dropped from the utterance, and this explains (41). [80] This fits in with Neale's project of generalising the

[77] The idea of linguistic ellipsis is that whereby material is deleted in the phonetic realisation of an expression. For instance, in the following sentence the italicised element may be dropped from the phonetic representation of the expression but is nevertheless interpreted, 'I can play football but John can't *play football*'. Conversely, pragmatic ellipsis is where additional material may be interpreted as part of the speech-act but is not present in the syntactic representation as in, 'I am going to a party *at John's house*'.

[78] The position has been labelled by some a 'hidden indexical theory of descriptions' in virtue of its positing ellipsis (Schiffer 1995; Bezuidenhout 1997). Schiffer criticises the position for being in conflict with direct reference theories of indexicals (1995), although Bezuidenhout, whilst not agreeing with Neale, sees no such conflict (1997, 382).

[79] Neale also recognizes the possible objection that the elliptical material may itself contain referential elements, but he states that "this is very different from saying that the *description* is interpreted referentially" (1990, 100). For further discussion on this issue see Neale (1990, 99-102).

[80] It should be noted that Wettstein rejects this account of incompleteness on the basis that the incomplete description could be filled out by any number of equally applicable pieces of elliptical material. Additionally, Wettstein states that the speaker will have no particular

machinery employed in referential uses of definite descriptions to fit a wider class of expressions that are part of natural language quantification.[81] The Russellian QT once again looks to be strengthened.

Interestingly, a phenomenon akin to incompleteness affects proper names as well:

(45) Ronaldo is a footballer.

An audience with a rudimentary knowledge of world class footballers may be unsure as to whether the speaker was referring to the Brazilian phenomenon Luis Ronaldo or the Portuguese winger Cristiano Ronaldo. There are a variety of ways to solve this problem. Firstly, the audience may ask the speaker who they intended to refer to. Secondly, the audience may recover from the context the intended referent. And thirdly, we might take the name to be indexed to a particular individual whilst being phonetically identical with other differently indexed instances of the name *Ronaldo*.[82] The same goes for (46):

(46) He is a footballer.

If (46) is uttered in a room full of people, without any further contextual or ostensive cues, then it will be difficult for the audience to apprehend the intended referent. In each of (45) and (46) ellipsis can help to alleviate the problems. It is worth noting that Neale views descriptive third-person animate and inanimate pronouns as the 'most incomplete of descriptions', and hence his elliptical view readily extends to them (2004, 125-129). The problem of incompleteness therefore appears widespread across arguments in natural language. Furthermore, incompleteness raises an issue for how it is that the linguistic meaning of the expressions fully determines truth-conditional content, or what is said, in such examples.

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preference for one over the other (see 1981, 97). The discussion in Wettstein is not relevant to our present purposes and is heavily criticised (Neale 1990, 98-102; Salmon 1982; 1991).

[81] Whilst endorsing ellipsis Neale is quick to point out that this is not *syntactic* ellipsis. There is nothing in this thesis to suggest that the elliptical material can be syntactically recovered or that it has been deleted during the syntactic derivation, a suggestion that Neale considers 'absurd' (2004, 139-143).

[82] It must be noted that none of this is intended to imply that the name fails to be a rigid designator, but simply that we should be aware that, from a purely communicative point of view, it might be labelled incomplete in a similar manner to the quantifier phrases.

The examples in (45) and (46) do not lend support to the claim that incompleteness and ellipsis is a phenomenon that is special to quantifier phrases. Instead, incompleteness may be a phenomenon that occurs with all arguments excluding perhaps first person pronominal reference. In a similar manner to the quantifier phrase examples, it is the descriptive content carried by the arguments in (45) and (46) that makes them incomplete. For instance, in a room containing more than one man, where no contextual or ostensive cues are offered, (46) cannot disambiguate its referent. This is because the only descriptive material it carries is that the referent be singular and masculine. Therefore, the existence of incompleteness in quantifier phrases more generally does not support the Russellian QT, any more than (45)-(46) support an ambiguity thesis.

The proper name and pronoun examples might be criticized on the basis that they do not elicit an incomplete nominal restriction of the sort contained in definite descriptions. The argument between Neale and Wettstein concerns instances whereby a determiner is restricted by its noun phrase (NP) complement whilst the NP complement itself leaves the expression incomplete. The proper name and pronoun examples do not follow this pattern as their descriptive content is radically diminished in virtue of not having an NP restriction. However, when we look at complex demonstratives the same problem is present:

(47) That desk is covered with books.

In a context where more than one desk is present and each desk is covered with books we once again get a problem akin to incompleteness. On the face of it, the linguistic meaning is insufficient for the audience to apprehend the intended referent. Nevertheless, sentences such as (47) are frequently treated in the literature as object-dependent.[83] Therefore, the idea of arguments requiring pragmatic ellipsis will not add weight to the Russellian argument and it cannot be seen simply as a wider account of natural language quantification, contrary to Neale's claims (1990, 101). Instead, the idea as employed by Neale may simply be the identification of a widespread phenomenon present in the majority of arguments employed in natural language use, a phenomenon that is ubiquitous in both natural language reference and quantification.

[83] It is worth noting that some deny that complex demonstratives are referential (King 2001).

A second thing to consider with respect to incompleteness is the role of context in the securing of a referent for incomplete descriptions. Following Lewis (1972), Neale states that certain expressions employ contextual coordinates including coordinates linked to the speaker, addressee, time of utterance, and place of utterance (1990, 69; 101). The contextual coordinates are demanded as part of the linguistic meaning of incomplete definite descriptions independently of speaker's meaning. An incomplete description together with the values given to the contextual coordinates that its linguistic meaning demands produces its semantic value. The concept of contextual coordinates used here is not one of free contextual enrichment of the sort posited in contextualism. The reference to ellipsis and contextual coordinates made by Neale thereby retains the literalism endorsed by a Russellian QT.

If we are less content with the tenets of literalism however, then we might opt for an account whereby incomplete descriptions are semantically underdetermined and are 'enriched' by pragmatics in such a way as to provide truth-conditions, such a view would be an instance of contextualism as outlined in §2. Bezuidenhout, for instance, states that:

> [d]efinite descriptions […] are not semantically ambiguous but, rather, *semantically underdetermined*. To interpret a sentence containing such an expression, pragmatic processes of various sorts must operate on an incomplete conceptual representation of the meaning of such a sentence, so as to yield a complete representation of the truth-evaluable content which that sentence has when used in some particular conversational context. (1997, 385-386)

The same follows for incomplete descriptions. Incomplete descriptions do not receive a truth-evaluable content – truth-conditions – until they are 'enriched' by the context of utterance. As such, there is no problem with a definite description being incomplete. Any definite description (uniquely identifying or otherwise) requires contextual enrichment in order to provide its contribution to truth-conditions. The critical part of this analysis is that 'what is said', that is, the truth-conditional part of an utterance, depends upon this enrichment. This is not the case with a Russellian account as the linguistic meaning of an expression ζ remains unaffected by context, only the semantic value of ζ is affected.

At this juncture, we can introduce a third potential position that is in contrast to both Neale's elliptical account of incompleteness and the alternative from contextualism. The third position will be grounded in grammar and form part of the GT to be detailed in more thoroughly in §5 and §6. It has been observed that incompleteness is rife in arguments. It is present in at least definite descriptions, quantifier phrases, proper names, and certain pronouns. Completeness is achieved through contextual coordinates valuing the expressions relative to the speech-act. A lexicocentric theory, as characterized in a Russellian QT, distinguishes the varying incomplete expressions on the basis of their conventional meaning, which in turn informs their linguistic meaning. We will offer an alternative, non-lexicocentric, account of the distinct manners in which incomplete expressions interact with context. Furthermore, within the QT those contextual coordinates are purely determined through pragmatic machinery (speaker's meaning). However, we will detail that certain contextual coordinates often assumed to be pragmatic, which we will group under the heading of speech-event features (following Sigurðsson 2004a; 2004b), are actually grammatical. In virtue of this, we will suggest that the grammatical engine of language actually codes for utterances to be taken relative to the context, which is established prior to any pragmatic influence.

The first part of our grammatical alternative concerns the topology of DPs (the topology of DPs will be discussed in detail in §5.342). In distinguishing the manner in which arguments interact with context we can turn to the interaction between the DP head, D, and its NP complement. Introducing some new terminology, we can take DPs to constitute a syntactic phase and understand D to constitute a phase 'edge' and NP to constitute a phase 'interior' (we will explain this terminology properly in §5.25 and §5.34). For instance, definite descriptions have content in both the edge (D) and interior (NP), demonstratives have an optional interior, and pronominal expressions cannot co-occur with an explicit interior:

(48) [D It [NP Ø]] is covered with books.

(49) [D That [NP (desk)]] is covered with books.

(50) [D The [NP desk]] is covered with books.

In terms of interaction with context, (48) is most reliant on context, the next most reliant is (49), and finally the least reliant is (50). The idea behind the DP topology is that the phase edge is the locus of reference and the phase interior is the locus of descriptive information (Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014). The more descriptive content an expression contains, the less it will rely upon contextual supplementation. In correspondence with these distinctions we see an increase in referential strength in accordance less interpretive reliance on the interior (referential strength thus decreases from (48)-(50)). We will see later in the thesis that we take the topology of DPs to partially constitute the semantics of arguments, therefore distinguishing it from lexicocentric semantic-type theories. The first alternative we will make with the QT is that the manner in which an argument interacts with context is determined by the grammatical configuration of the DP in which it is contained.

The second part of our grammatical alternative concerns speech-event features, which are posited as part of the complementizer phrase (C) that projects at the top of all syntactic clauses. According to Sigurðsson, every syntactic clause contains syntactic projections corresponding to speech-Time (S_T), speech-Location (S_L), logophoric-Agent (L_A), and logophoric-Patient (L_P) (Sigurðsson 2004b, 230). Furthermore, the matrix C contains speech-event features that a valued relative to the exact speech-act taking place. Within modern cartographic syntax it is not possible to think of a sentence as fully derived, syntactically complete, and isolated from a speech-event. A syntactic clause is thus always valued relative to the speech-event it is part of, even if no phonetic material is realised on these speech-event projections (2009, 172). Let us consider an incomplete description:

(51) [$_C$ S_T S_L L_A L_P [The desk is covered with books].

We have introduced the speech-event projections to illustrate the point. An utterance of (51) is always taken relative to the speech-event, and hence the fact that the descriptive content fails to pick out a unique individual is thus unimportant. There is essentially an inherent domain restriction picked out by the values of the speech-event features, which forces *the desk* to be understood just in the present speech-event. In other words, syntax makes the definite description, or sentence as a whole, complete enough, relative to the speech-act context, to identify a referent (Hinzen, *forthcoming*). We

will discuss this idea further in §5.4, but we introduce it to give a flavour of how a grammatical theory might venture to explain incompleteness. Critically, all of the above, the topology of DPs and the speech-event features, takes place prior to pragmatics getting a look-in. Therefore, there is at least one possible alternative to both literalism and contextualism in instances of incompleteness.

3.343

ANAPHORA

Another topic that is raised against the Russellian comes from referential anaphora. Typically, anaphora is categorized in, at least, the following three ways:

(52) As bound variables:
Some player broke *his* foot.

(53) As referential expressions:
The manager is in the technical area. *He* looks angry.

(54) As definite articles or disguised descriptions (E-type anaphora):
Every man that owns a donkey beats *it*.

With respect to definite descriptions, examples (53) and (54) are the interesting examples. In (53) the anaphoric pronoun shares a referent with the definite description, and in (54) the anaphoric pronoun is, arguably, a proxy for a definite description. Neale focuses his attention on examples like these and so shall we. The question is to what extent the Russellian can account for the relationship between anaphoric pronouns and the expressions that act as their antecedents.

Let us begin with the type of anaphora exhibited in (53). Neale uses the following pair of sentences to outline the problem for the Russellian (with the italics highlighting the antecedent phrase and anaphoric phrase respectively):

(55) [α *The manager*] is in the technical area. [β *He*] looks angry.

In (55) the anaphoric pronoun β is tied to the antecedent definite description α. Neale points out that there are two options for

understanding the anaphoric pronoun, either it is a bound variable or it is a referential expression. If the anaphoric pronoun is a bound variable, then it is required that it is c-commanded by the antecedent phrase, whose role it is to do the binding.[84] C-command does not stretch across sentences, and hence the anaphoric pronoun in (55) is not a bound variable and must therefore be a referential expression (1990, 171-176). The problem for the Russellian, as Neale sees it, is that if β is a referential expression and is anaphoric on α, then β must inherit its referent from α, and if β inherits its referent from α, then α must likewise be a referential expression. This argument for definite descriptions having a referential semantics, at least in these instances, is named by Neale the 'argument from anaphora' (1990, 176).

With respect to the example in (55) the role of the anaphoric pronoun is to hook onto a discourse referent introduced by the antecedent description. The explanation Neale offers for this phenomenon is drawn from his understanding of how definite descriptions can be used to communicate object-dependent propositions. In order to maintain the view that β is a referential expression Neale must account for how there comes to be a referent that it hooks onto. The account once again involves the general distinction between the linguistic meaning and the speaker's meaning. The antecedent description α communicates an object-dependent proposition and thereby makes salient a particular individual, without, according to Neale, being a referential expression itself. Following Lewis (1979), Neale claims that the anaphoric pronoun can then hook onto the salient individual, without the further claim that this is because the definite description is referential. Once again this argument is generalized to account for instances of standard quantification and anaphora where the anaphoric pronoun is not c-commanded, hence bound, by the quantifier, as in (56):

(56) *Someone* broke the vase. *He* will get the bill in the post.

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[84] Radford informally defines c-command as "a structural relation between two constituents. To say that one constituent X c-commands another constituent Y is (informally) to say that X is no lower than Y in the structure (i.e. either X is higher up in the structure than Y, or the two are at the same height)… a constituent X c-commands its sister constituent Y and any constituent Z that is contained within Y" (2004, 440). The term 'structure' simply refers to syntactic structure and height refers to positions within syntactic trees that are employed to illustrate syntactic derivations.

The point of this is to account for the anaphoric pronoun being referential without committing to the view that the antecedent description, or quantifier phrase, is referential as well (1990, 177).

One possible problem emerges when we conjoin the two sentences in (55) to create an individual sentence as in (57):

(57) *The manager* is in the technical area and *he* looks angry.

If we recall that Neale's view involves the communication of an object-dependent proposition in order for the anaphoric pronoun to hook onto a referent, then the problem is clear. The problem is that in virtue of this being a single sentence the first conjunct does not manage to communicate an object-dependent proposition that the second conjunct can make use of. If we consider the communicative act, there is not enough time for the truth-conditions for the first conjunct to be settled and hence the contextual coordinates established for the antecedent. Nevertheless, the Russellian can retort that the audience's ability to parse the sentence in real-time may enable the relevant individual to become salient in time for the anaphoric expression to make use of it. In such a case the Russellian must then explain how this parsing is enabled.

A further option that Neale outlines comes from non-referential uses of descriptions and pronouns that are anaphoric on them. The following is such an example:

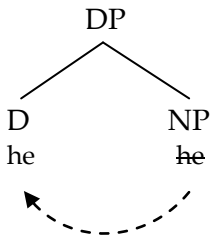
(58) *The inventor of bifocals* was a genius and *he* ate a lot of fish.

In the case of (58) the definite description is, according to the Russellian, used attributively, and hence neither communicates an object-dependent proposition nor makes salient a particular individual. What then is the linguistic meaning of the anaphoric pronoun if it is neither a bound pronoun nor a referential pronoun? According to Neale, the anaphoric pronoun is a proxy for the antecedent description, the pronoun is interpreted as a "repeated occurrence of its antecedent", it is interpreted as a definite description (1990, 183). This analysis is a popular account of what are termed E-type anaphora exhibited in (54). In fact, Neale goes so far as to state that the transformation from a definite description to a pronoun may well be a "linguistic rule that operates on syntactical representations" (1990, 184). Of course, this position makes a strong claim concerning syntactic

derivations and the manner in which transformations might hide semantic facts. If such claims are legitimate, then perhaps such an account will deal with (57) also.

Nevertheless, a syntactic problem arises if one is hoping to take the account above to explain (57). The argument above for Neale's proxy account is that at some level of syntactic representation the anaphoric pronoun is actually a definite description. Following this, there exist transformation rules that replace the description with a pronoun and force a deletion of the accompanying noun phrase. Of course, all of this is done prior to the assignment of morphophonemic features to the expression and prior to its being spoken. However, there is evidence to suggest that the pronouns in examples such as (57) originate in the noun phrase position and then move into the determiner position afterwards, which is a phenomenon known as N to D movement.[85] The reason for this, it is argued, is to allow the pronoun to check its referential features (Cardinaletti 1993; Progovac 1998; Rutkowski 2002, 163). The process is as illustrated below:

(59)



The problem for Neale is that the whole DP has now been occupied by the pronominal element, thereby leaving room for neither a definite description nor a transformation to occur. In addition, the fact that the NP is now left empty, through NP deletion, illustrates an important syntactic difference, namely that pronouns are ungrammatical if the NP compliment is filled. The same goes for a stronger view that the pronoun originates in the D position, which again bans the presence of material in the NP. Taking all these things into consideration leaves considerable doubt as to the proxy theory of pronouns, especially when applied to (57). There would have to be an account for why this process took place, and why the pronoun was

[85] In Martin & Hinzen (2014) they suggest that the pronoun moves once more from D into what they term a 'deictic layer' in the extended edge of DPs, which is responsible for the strong deictic interpretation that pronouns receive, this is what they term D-to-D# movement. We will look at this idea in detail in §6.11.

rendered favourable to the deleted definite description. Therefore, (57) remains a problem for the Russellian. Critically, the problem is one that is founded upon the underlying syntactic structure of DPs where definite descriptions and pronouns fall. A thorough understanding of the syntactic structure of DPs may thus provide answers to the problem of referential anaphoric descriptions.

3.35

SUMMARY

It is worthwhile briefly summarizing Neale's position and the modified Russellian QT that it provides. We have illustrated that the position retains a strong defence of semantic literalism and is arguably lexicocentric. Furthermore, we have looked at some problems for the theory, including the CAP as well as problems from misdescription, incompleteness, and anaphora. We observed that the solutions to each problem were couched in an attempt to place the theory within a wider theory of natural language quantification and the semantics/pragmatics distinction. Additionally, we introduced some reasons to doubt the solutions that emerge once we look at the underlying grammatical structure of such expressions. In §6 we will develop the points introduced here in more detail once we have explained our fully-fledged grammatical theory of meaning.

We can provide a final formulation of the Russian QT as follows:

(60) **The Russellian Theory of Descriptions

i. The linguistic meaning of any definite description *d* is a Russellian paraphrase modified to align with surface syntax.

ii. The lexical entry for the definite article is of type <<e, t>, <<e, t>, t>>, and when merged in D and combined with an NP it is a restricted quantifier phrase of type <<e, t>, t>.

iii. A speaker may succeed in communicating an object-dependent proposition *p* containing *d* through pragmatic machinery that accompanies the utterance, but the linguistic meaning remains object-independent.

iv. Instances of misdescription, incompleteness, and referential anaphora, are all explained in reference to pragmatic machinery that accompanies an utterance of *p*.

v. The phenomena in (*iii*)-(*iv*) are present across the board with natural language quantification, and so too is the pragmatic machinery that explains them.

vi. Following (*v*), the pragmatic machinery employed in explaining referential uses of definite descriptions is more economic than its semantic counterpart. The pragmatic machinery comes "in some sense, *free*: the machinery that is appealed to is needed anyway" (1990, 80-81).

We will make reference to (60) throughout the rest of the thesis when mentioning QTs.

To conclude this section we will analyse how the Russellian QT as outlined in (60) deals with each of the three ambiguity problems from §1.1.[86] The solution provided to the CAP has been given numerous times above; a Russellian QT rejects the existence of a semantic solution. The genesis of the CAP is to be found in pragmatics. The two uses are enabled through pragmatic machinery that accompanies an utterance. A sentential utterance containing a definite description can be used on occasion to successfully communicate an object-dependent proposition, whilst 'what is said' remains object-independent. The linguistic meaning is quantificational but the speaker's meaning allows the communication of an object-dependent proposition thereby enabling referential uses. As for the first grammatical ambiguity problem, GAP1, this is likewise answered in the negative. Neale explicitly states that the modified Russellian paraphrase is meant to account for the linguistic meaning of any expression that contains the definite article or is derived from a definite description. The ambiguity in GAP1 is therefore likewise enabled through pragmatic machinery and as such there is no semantic ambiguity. Finally, as for GAP2 Neale does not explicitly address the ambiguity, however as we can see from the answer to GAP1 the linguistic meaning for any sentence containing a definite description as the subject will express an object-independent proposition.

[86] See §1.1 for an outline of the three ambiguity problems.

Therefore, GAP2 is likewise answered in the negative. The pragmatic genesis offered for CAP, GAP1, and GAP2 retains the core tenets of literalism and the distinction between linguistic meaning and speaker's meaning. The linguistic meaning of a definite description is always quantificational and is specified lexically. Finally, as for what is said, this is derived entirely from the linguistic meaning. The truth-conditional contribution of a definite description to a proposition containing it is always quantificational and thus creates an object-independent proposition.

In the next chapter we will analyse two theories that defend the existence of a semantic ambiguity, which are from Kaplan and Devitt. The two theories both defend semantic literalism, and both appear to support a lexicocentric account of compositional semantics, however they deny the unified Russellian account of the semantics of definite descriptions. It is to these theories that we now turn.

4

Two Ambiguity Theories of Descriptions

In §3 we introduced the Russellian QT and two strategic modifications of it from Kripke and Neale. It was observed that the theory falls within the bounds of semantic literalism and can be described as lexicocentric. Furthermore, we gave some reasons to think that an analysis of the grammar of DPs and speech-event features in syntax might provide an alternative to the QT. However, it is not the case however that by endorsing a form of semantic literalism, and a lexicocentric view of compositional semantics, one is forced to accept a Russellian QT. The ensuing chapter will introduce and analyse two ambiguity theses (AT), which retain a form of literalism whilst defending the view that definite descriptions are semantically ambiguous (thereby answering at least one of CAP, GAP1, or GAP2 in the positive).

To begin with, in §4.1 we will analyse Kaplan's AT (1970; 1979; 1989a; 1989b; 2005). Kaplan's theory takes referential uses to be semantic and instances of direct reference. It is a direct reference theory. The theory

attempted to bring referential uses of definite descriptions in line with demonstratives and other indexical expressions. It states that such expressions employ a semantic operator, termed DTHAT, which enables direct reference. Furthermore, it takes DTHAT to explain the linguistic convention associated with referential descriptions. In virtue of reference emerging as a property of a semantic operator, the theory thus rejects dependence upon pragmatic machinery in order to explain referential uses of descriptions. We will analyse and ultimately reject Kaplan's AT, and its solution to the genesis of the ambiguity problems, on the basis that the operator is stipulated to account for linguistic convention without providing sufficient reason for its existence. In §4.2 we will introduce a second AT from Devitt (1974; 1981a; 1981b; 2004; 2007a; 2007b). The second AT takes referential uses of definite descriptions to take part in a causal network forming a designating chain with the individuals that they pick out. It is a causal theory. According to Devitt, definite descriptions, demonstratives, and indexicals all employ designating chains that enable them to act as referential expressions, and it is these chains that explain the linguistic convention associated with referential uses of descriptions.[87] Furthermore, these chains are enabled through the semantics of definite descriptions, and are not pieces of pragmatic machinery. As with Kaplan, we will reject Devitt's AT on the basis that it stipulates the designating chain in order to account for linguistic convention rather than explaining either the convention or the genesis of the causal chain. Following Recanati, we will term the two theories neo-Russellian and neo-Fregean respectively (Recanati 1993, 28-34).[88]

The main purpose of this chapter is to provide a critique of the two ATs, which were developed in line with literalism and a lexicocentric compositional semantics. The first criticism is that neither succeeds in providing an explanatory account of how the linguistic convention for referential uses emerges in the first place, and the second is the two theories simply stipulate the referential semantics in order to fit the

[87] Devitt does however reject a direct reference theory, instead taking descriptive content to be semantically operative in referential descriptions (1990; 2012a).

[88] The first theory labelled 'neo-Russellian' should not be confused with the Russellian theory of descriptions analysed in §3. It is called neo-Russellian in virtue of defending a view of singular terms that is arguably present in Russell's earlier work in *Principles of Mathematics* (1903). It should in no way be understood as deriving from his work in 'On Denoting' (1905).

linguistic convention. In doing this, we will argue that the linguistic convention for referential descriptions can be understood as emerging through the grammar of DPs and the close-knit grammatical relationship that the definite article and distal demonstrative share. The first claim will be based upon the topology of DPs, and the second will be formed through cross-linguistic evidence gathered from Montagnais, Plains Cree, and dialects of Mandarin. We will conclude that the linguistic convention for referential uses of descriptions, which the two ATs employ to ground their semantic theories, is best understood as arising through grammar. In §5 and §6 we will develop these idea into an integrated grammatical theory of meaning.

4.1

A NEO-RUSSELLIAN THEORY

The first AT we will analyse comes from Kaplan's direct reference theory, which we will label neo-Russellian. Recanati labels such theories neo-Russellian in virtue of their conception of singular terms and singular propositions (1993, 28), a conception that is reminiscent of that found in Russell (POM 1903, 54). Direct reference theory has at least three important aims: to give an account of what constitutes a genuine singular term (and singular proposition), to account for the semantics of indexical expressions (including at least demonstratives, complex demonstratives, and pronouns), and to provide a referential semantics for certain uses of definite descriptions.

To begin with, direct reference theory is interested in giving an account of singular terms, which are understood to exhibit a purely referential function (Recanati 1993, 29). To give us a clear starting point let us provide a working definition of a singular term:

(1) Singular Term

ζ is a singular term if and only if the following two conditions hold:

i. The semantic function of ζ is to stand for an individual.

ii. A proposition *p* containing ζ is object-dependent.

Direct reference theory defends the above definition of singular terms with a caveat that the only semantic contribution of ζ to *p* is the actual individual it stands for. The theory was developed by Kaplan as a way of grounding rigid designation, and was extended to cover a wide range of arguments that can be used referentially. The core tenet of direct reference theory is that it denies the presence of a Fregean sense/intension in the semantics of singular terms (Kaplan 1989b, 568).

It is commonplace to understand Frege as defending the view that the semantics of a singular term is identical with a definite description that accurately depicts the referent (1948, 210). The semantics of a proper name would thereby contain descriptive content or would at least pick out its referent through a description, or cluster of descriptions (Searle 1958; Strawson 1959; Wittgenstein 1953), understood as an 'intermediary sense or connotation' (Stevens 2011, 14).[89] We might call this a mediated reference theory. The view being defined is often labelled descriptivism.[90] Direct reference theory is formed in opposition to descriptivism, and denies that any descriptive content is semantically operative in singular terms (Kaplan 1970; 1979; Soames 2002, 5). In this sense, direct reference theory is more simplistic. It defends the view that the semantic content of a singular term just is the individual it picks out.[91]

Kaplan states that the term 'direct' in direct reference "means unmediated by any propositional component, not unmediated *simpliciter*" (Kaplan,

[89] Additionally, under this reading we might understand Frege as defending the view that a singular term can have a sense without having a referent. Evans (1982) questions this interpretation of the Fregean program, and suggests that in actual fact the interpretation of Frege's position on singular terms that is most consistent with his other comments is that singular terms that lack a referent also lack a sense. In accepting this reading one understands Frege as defending the view that singular terms have a de re sense. As Evans notes "Frege nowhere said that absolutely any kind of singular term could have a sense whether or not it has a referent." Yet, the inclusion of definite descriptions into this system does indeed say this, again Evans notes that "so long as he regarded definite descriptions as singular terms, such a recognition [that expressions may have a sense without a referent] was absolutely imperative. The recognition of non-Russellian singular terms would require some alteration, in that Frege's global identification of the semantic value of a singular term with its referent would have to be given up" (1982, 38-39). Whichever interpretation you choose, a Fregean who defended the view that singular terms have a sense if and only if they had a referent would be unable, in Evans' view, to treat definite descriptions as singular terms.

[90] The reading of Frege that takes him to defend descriptivism is one found in Kaplan (1970; 1979a) and Kripke (1981).

[91] It may be understood as an Individual concept/essence (Davidson 2000, 295).

1989b, 569). For instance, whilst the descriptive content of a definite description *d* may help the auditor identify the intended referent of *d*, it does not play any part in the semantic content or 'what is said' in terms of its truth-conditional contribution to a sentential utterance that it is a part of. According to Kaplan, the above claim must hold in order for there to exist authentic singular propositions. The theory of descriptions thus proposed by Kaplan, and the AT it defends, is thus based upon referential descriptions acting as singular terms and contributing to singular propositions. In a type-based semantics we can thus understand Kaplan as stating that referential descriptions are of type <e>, which is in contrast to the Russellian QT.

4.11

SINGULAR PROPOSITIONS

Sentences containing singular terms are taken to express singular propositions. We can define them as follows, "[s]ingular propositions are propositions that are about a particular individual in virtue of having that individual as a direct constituent." (Fitch & Nelson 2013) A variety of philosophers have held the view that singular propositions contain terms that elicit a form of direct or unmediated reference, including Mill (1882), Russell (1903; 1905), Marcus (1961), Kripke (1981), Salmon (1986), Soames (2002), and, most prominently, Kaplan (1970; 1979a; 1989a; 1989b; 2005). For many, not least Kaplan, direct reference theory is the only alternative to descriptivism that retains a robust distinction between singular and general propositions.

Kaplan provides the strongest support and most hard line analysis of those that defend a form of direct reference theory. Singular propositions are distinguished from general ones in virtue of being about particular individuals but also 'having that individual as a direct constituent'.[92] Singular propositions therefore contain individuals and properties

[92] As Stevens points out, it is tempting under Russell's analysis of singular and general propositions to take general propositions to fail to contain the things they are about. However, as he points out general propositions are about denoting phrases, not actual living breathing objects, and hence "[t]he theory allows these two claims", that general propositions are distinct from singular ones but still contain the things they are about, "to be asserted without incompatibility by denying that sentences containing denoting phrases in subject position are about the things these phrases purport to denote" (2011, 14).

themselves as constituents (Davidson 2000, 285). Kaplan distinguishes the two forms of propositions in the following manner: take (2) and (3) to illustrate different types of logical subject (italicised), and then formalize them as the ordered pairs in (4) and (5) respectively:

(2) *Every spy* is suspicious.

(3) *John* is suspicious.

(4) <<'Every', S>, P>

(5) <John, P>

Let us assign a truth value to each of (2) – (5) relative to a possible world *w* and time *t*. Additionally, take P to pick out the predicate 'being suspicious' and S to pick out the predicate 'being a spy'. Following this, (4) "determines the function which assigns truth to a given *w* and *t* if and only if every member of S(*w*, *t*) is a member of P(*w*, *t*)" (1970, 218). Conversely, (5) determines a function which assigns truth to a given *w* and *t* if and only if John is a member of P(*w*, *t*). John is a constituent of the proposition (5), expressed by sentence (3), and its truth in *w* at *t* depends specifically upon John, whereas this is not the case with (2). Sentence (2) has no particular individual (neither John nor Mary nor Ronaldo) as a constituent in the proposition that it expresses. Sentence (2) is thus general, it is about the denoting concept expressed by the determiner phrase *every spy*, whereas sentence (3) is singular, it is about John.

To clarify some differences between descriptivism and direct reference theory we can begin with a discussion of names. Direct reference theory states that a name is merely a label, or tag, for the individual it stands for. As such, a name contributes no descriptive material its semantic content, a position often termed Millian (Almog 1986, 228; Abbott 2010, 14). As an example consider (6):

(6) Ronaldo is Portuguese.

A direct reference theory takes the name *Ronaldo* to pick out the individual Ronaldo, which in turn acts as a constituent of the proposition expressed by (6) without further mediation. Descriptivism, conversely, understands the referent of *Ronaldo* as being picked out through mediation of an associated true description of the individual (Frege, 1948, 210). For instance, in (6) the

name *Ronaldo* might identify Ronaldo through mediation of the true description 'the winner of the 2014 Ballon d'or'. The description thus forms part of the semantic content of the sentence. It is part of what is said. The name *Ronaldo* has the same extension under both descriptivism and direct reference theory, however the intension is distinct. For descriptivism, the intension is a true description, or cluster thereof, of Ronaldo, whereas for direct reference theory it is the particular individual itself.[93] Therefore, the admittance of descriptive content into the semantics, and propositional content, expressed by (6) is not necessary if the name is understood as making direct reference to the appropriate individual. Direct reference thus shares an affinity with the notion of rigidity introduced by Kripke (1981). We can understand Kaplan, therefore, as taking the linguistic meaning of a proper name to be identical with the individual it stands for.

With respect to the descriptions literature, the interesting aspect of direct reference theory is that it can be applied to other expressions besides proper names. For instance, admitting definite descriptions into the direct reference framework would, theoretically, ban them from having descriptive content as part of their semantic contribution to what is said. Assume (7) is said in the presence of Ronaldo (the intended referent):

(7) The forward is Portuguese.

A direct reference analysis of (7) contributes a particular individual to the proposition it expresses in a manner identical to (6). In virtue of this the descriptive material *forward* is not part of (7)'s propositional content. The NP restriction *forward* is not part of the definite description's linguistic meaning or what is said. Conversely, for the descriptivist this content is central and semantically operative. The direct reference theorist on the other hand, in denying a place in the semantics for descriptive content, is led to the view that "terms that are directly referential… are of necessity meaningless, since to endow them with a meaning distinct from their reference would be to ascribe them a descriptive or attributive function over and above their referring function" (Recanati 1993, 29). A strong interpretation of descriptivism thus denies a referential function to singular

[93] Frege states that with respect to a given name 'opinions as to the sense may differ' (1948, 210). This raises a question concerning what description would suffice as the semantic content of a name. For instance, would a single true description suffice, or would we need the inclusive disjunction of all those true descriptions of the individual (Searle 1958, 172).

terms. Alternatively, direct reference theory retains the referential function as central and unmediated. If definite descriptions are labelled as being instance of direct reference, then they act like labels or tags for their referents. Singular terms have no further semantic content beyond their referential function.

4.12

MODES OF PRESENTATION

There are at least two problematic questions that can be posed to a direct reference theory of definite descriptions: why is descriptive material denied a place in the semantics of singular terms? and if one defends such a position, then what role does the phonetically realised descriptive content expressed in arguments play in natural language reference? At this point we can note that there is nothing specific about the lexical items used in the descriptive content of a definite description that renders them absent from the semantic content. Therefore, the answer to the two questions posed must rest elsewhere. Moreover, it is clear that a competent auditor will make use of the descriptive content in identifying the referent of a definite description. We therefore need an account of exactly what role the descriptive content actually plays.

The following claim from Kaplan will help elucidate the answers, he states that:

> [s]ome or all of the denoting phrases used in an utterance should not be considered part of the content of what is said but should rather be thought of as contextual factors which help us interpret the actual physical utterance as having a certain content. (1970, 219)

In other words, given the definite description in (7) direct reference theory understands the descriptive content as simply aiding the auditor in identifying the referent but it does so without contributing to the truth-conditional content of the expressed proposition or what is said. The descriptive content in the NP of (7) has as much effect on its linguistic meaning as an ostensive act of pointing would that may accompany it. We can label the descriptive content a 'mode of presentation' of the referent.

The mode of presentation carried by a singular term is not part of its semantic content, but it does help identify its referent and in order to do that it must be interpretable. Kaplan claims that "it is the 'sense' of the demonstration that is grasped by the competent auditor of utterances containing demonstration [a mode of presentation]" but whilst this is the case he remains adamant that the mode of presentation is not part of the semantic content of what is expressed (1970, 221). For Kaplan, the worry is as follows:

> [i]f we force all phenomena that suggest a special *demonstrative* use of language, along with what I regard as a corresponding feature – a special singular form of proposition – into the Fregean mould of linguistic elements with a sense and a denotation, the sense being the element which appears in the proposition (thus leaving us with only general propositions), then important insights will be lost. (1970, 222)

Therefore, if one takes the sense of a singular term to be part of the proposition expressed, then one is left with only general propositions, propositions that cannot contain individuals as constituents. Accordingly, views such as descriptivism are reduced to maintaining quasi-singular propositions (Schiffer 1987). This is the answer to the first question raised above.

The theory being developed by Kaplan is intended to cover a wide range of expressions that are capable of being used referentially: names, indexicals, demonstratives, complex demonstratives, and definite descriptions. As a result of this, we can state that direct reference theory does not distinguish the grammatical structure of singular terms in so far as semantic content is concerned. As Kaplan notes:

> [w]e shall take the component of the proposition which corresponds to the demonstrative to be the individual demonstrated. Thus the varying *forms* which such a demonstration can take are not reflected in the content of the utterance. (1970, 220-221)

Despite the clear grammatical differences that are found within the aforementioned range of expressions, Kaplan states that they all create instances of direct reference and contribute in an identical manner to

semantic content. Their modes of presentation may differ but their contribution to the semantic content will not.

The importance of the existence of varying grammatical forms of singular terms can be seen in the different ways in which they present their referents. For instance, a bare deictic demonstrative presents its referent in a distinct manner to a definite description. A bare deictic demonstrative may present its referent through an ostensive act, whereas a definite description may present its referent through phonetically realised descriptive content. We can illustrate this with the following two sentences:

(8) The desk is covered with books.

(9) That [the speaker points at a salient desk] is covered with books.

In (8) the referent is presented through descriptive material, whereas in (9) it is presented through the demonstrative in conjunction with an ostensive act. If we assume that the subjects of both (8) and (9) are singular terms, then regardless of how the referent is presented both singular terms contribute the same individual to the proposition expressed, they contribute the same semantic content. Finally, it is important to note that the semantic content of (8) and (9) is taken relative to the utterance context.[94]

Direct reference theory thus takes the descriptive content of a singular term to be a mode of presentation that, relative to a context of utterance, provides an individual as the terms semantic contribution to a proposition it is part of. Furthermore, the mode of presentation is distinct from a Fregean sense in virtue of failing to be part of the proposition expressed. We can tentatively state that the linguistic meaning of a singular term is identical with the individual it picks out in the utterance context, and that this is the contribution to truth-conditional content and what is said.

[94] Modes of presentation are likewise drawn upon to explain the cognitive impact of identity statements. Two names, *Hesperus* and *Phosphorus* may pick out the same referent, but they present it differently. Hence, *Hesperus is Phosphorus* is cognitively informative (1970, 227).

4.13

CONTENT, CHARACTER, AND CONTEXT

According to Kaplan there are two components that go together to form the meaning of an expression. These are the expression's 'content' and the expression's 'character' (1989a, 500). Let us begin with the former. The first thing to say about the content of an expression is that it is "always taken *with respect* to a given context of use" (1979a, 83). The content of a sentential utterance is "what has traditionally been called a proposition" (1979a, 84; 1989a, 500) and the content of a sub-sentential expression "is its contribution to the truth-evaluable propositional content of the sentence containing it" (Taschek 1987, 164). Non-indexical expressions have a fixed content across contexts, whereas indexical expressions have a context-sensitive content (1989a, 501-502). We can associate the content of a sentential expression with its truth-conditional content, or what is said in a particular utterance of it.

To begin with let us illustrate the difference between expressions that are context-sensitive and those that are not. Take an expression such as (10):

(10) Cristiano Ronaldo is injured on February 12th 2011.

Irrespective of who utters (10), and at what time, it will always have a constant semantic content and thus a constant set of truth-conditions. What is said will not change across contexts. The semantics of (10) is the same regardless of who says it or when it is said (1989a, 506). Alternatively, an expression such as (11) will have a different meaning across contexts:

(11) I am injured on February 12th 2011.

For instance, it would mean something distinct if I uttered it than if Cristiano Ronaldo did. The former would cash out as (12) and the later as (13):

(12) Thomas Hughes is injured on February 12th 2011.

(13) Cristiano Ronaldo is injured on February 12th 2011.

The reason for this is that the pronoun *I* in (11) has a context-sensitive content. Its semantic contribution must be taken relative to the utterance context.

The second type of meaning termed 'character' is what determines the content in a given utterance. An expression's character is defined as follows, "I call that component of the sense of an expression which determines how the content is determined by the context, the 'character' of an expression." (1979, 83-84; 1989a, 505; Taschek 1987, 165) Therefore, with respect to the utterance context, the character will dictate the semantic content of the expression. Once again, some expressions have a context-sensitive character and other do not. As Kaplan notes, "[i]dexicals have a *context-sensitive* character. It is characteristic of an indexical that its content varies with context. Non-indexicals have a *fixed* character. The same content is invoked in all contexts" (1989a, 506). The role of character therefore is to establish the content of an expression as used on a particular occasion whilst not itself being part of that truth-evaluable content. The character of an expression is thereby a function from contexts to contents (1979a, 84; 1989a, 506).

According to Kaplan, the character of an expression is "what is set by linguistic conventions" and he also claims that "it is natural to think of it as *meaning* in the sense of what is known by the competent language user" (1989a, 505). We now have a difficulty with fitting character into our understanding of linguistic meaning. First of all, the character of an expression is not part of what is said in a particular utterance, it is not part of the truth-conditional content of the utterance. Nevertheless, it does play a role in securing the truth-conditional content. If we recall our definition of linguistic meaning from §2.1, we associated it with a sentence or expression-type, which particular utterances are tokens of. We can think of character in the same light. Furthermore, with respect to being competent with a language we can state that to know how to use an expression is to know how to employ its character, expression-type, in particular utterances (1970, 84). In knowing how to do this, the language user will consequently know how to determine truth-conditional content.

The character of the indexical in (11) will in once instance produce the semantic content associated with (12) and in another instance produce (13). A competent language user will be able to determine, relative to the context,

what is said in any given use of (11). Importantly, whilst the content that the indexical contributes to the proposition expressed will be distinct across contexts the character will not. This is why we can associate character with linguistic meaning or the expression-type. For instance, the character of the first person pronoun will always provide the proposition expressed with the speaker as its semantic contribution.[95]

In sum, every meaningful utterance has a specified semantic content that is derived from the expression's character and the context in which it is used. We can distinguish indexical from non-indexical expressions as follows; with respect to an indexical expression we may state that the character is a function from "contexts to extensions" and the character of a non-indexical expression "just *is* its (constant) content" (1989a, 507). We can extend this to state that the character of a compound expression is a function of the character of its parts and the content of a compound expression is a function of the content of its parts (1989a, 507). At this point it is worth stating that the theory does not employ pragmatic machinery to settle truth-conditional content. It is essentially endorsing indexicalism. The character of indexical expressions, its linguistic meaning, demands contextual saturation in order to have a semantic content.

It is worth clarifying this final point if we are to continue claiming that Kaplan's AT is a form of literalism. The role of context in settling semantic content might be seen as contradicting this claim. However, to reiterate the definite of indexicalism we gave in §2.1, "no contextual influences are allowed to affect the intuitive truth-conditional content of an utterance unless the sentence itself demands it" (Recanati 2004, 85). It is the final clause that makes Kaplan's view one captured by literalism. The linguistic meaning of an indexical expression demands saturation from the context in the specification of its truth-conditional content. Kaplan's theory of indexicals therefore allows context to play a role in the semantic content only insofar as the expression's linguistic meaning demands it (a view akin to Neale's outlined in §3.32). It remains robustly in the mould of literalism.

Clearly, there are many interrelated factors that go together in establishing which particular individual an indexical picks out. The context-sensitive

[95] This is true in all cases except that of quotation.

nature of indexicals can, according to Kaplan, be further divided into particular contextual coordinates. In the same vein as Neale, Kaplan states that the contextual coordinates would include the world of utterance, time, speaker, and position (within the world). The valuations of these coordinates will provide an individual to the proposition the indexical is part of. We can solidify this analysis with an example:

(14) I am tired.

The character of the expression, being composed of the character of its parts, looks to the context and values it accordingly. One use of (14) could be understood as expressing the semantic content captured explicitly, without indexical expressions, in (15):

(15) Thomas J. Hughes is tired at 3pm on August 15th 2014 in Durham (in the actual world).

The truth-conditional content expressed by (14) in this instance is equivalent to (15). All of this is done without recourse to pragmatic enrichment, speaker's meaning, and so on. We can now turn to analyse Kaplan's AT and his solution to the genesis of the three ambiguity problems.

4.14

DTHAT

Kaplan's theory of descriptions is developed in line with the machinery outlined above in conjunction with the introduction of a semantic operator termed 'DTHAT'. The operator is taken to be present in every singular term in order to signify that the term elicits direct reference. It is posited in the semantics of demonstratives, pronouns, and definite descriptions. The operator indicates that the singular term it is attached to will contribute an individual to the proposition that it is part of. It is therefore part of the linguistic meaning of singular terms and is responsible for what is said. Additionally, the operator signifies that the singular term will be aided by a particular mode of presentation of the intended referent. Taking δ to be a

mode of presentation, Kaplan defines an expression eliciting direct reference as follows:

(16) In any context *c*, DTHAT[*δ*] is a directly referential term that designates the demonstratum, if any, of *δ* in *c*, and that otherwise designates nothing (1989a, 527).

The DTHAT operator applies to definite descriptions as follows, "[i]nstead of taking the sense of the description as subject of the proposition, we use the sense only to fix the denotation which we then take directly as subject component of the proposition" (1970, 223). Referential uses of definite descriptions include the DTHAT operator, which forces them to be interpreted as singular terms. The descriptive content thus acts as *δ*, securing a referent without being part of the semantic content.

To elucidate the idea we can make use of some examples. First of all, consider (17):

(17) DTHAT [the manager] is angry.

In (17) we have the operator that is responsible for the utterance creating an act of direct reference and the descriptive content in the square brackets acts as the mode of presentation of the intended referent (1989a, 521). It is important to note that the operator is not there to translate the definite description into something rigid, but is the source of direct reference on its own (Kaplan 1989b, 579). According to Kaplan, whenever a definite description is used referentially the schematic in (16) applies.[96]

In virtue of the descriptive content merely acting as a mode of presentation it is places on a part with an ostensive act, perhaps pointing. In his own words, Kaplan states that "if pointing can be taken as a form of describing, why not take describing as a form of pointing?" (1970, 223). The idea expressed here is not without its critics. Bach, for instance, denies that describing can be a form of pointing. According to him, by accepting such a claim we place "no epistemological constraint on what one can 'directly

[96] In 'DTHAT' (1970; 1979) Kaplan takes the descriptive content of a definite description to be semantic but not part of the propositional content, however in later work Kaplan's position alters slightly in that he denies any semantic significance at all to the demonstration/modes of presentation (1989b, 582). Nevertheless, in both versions of the theory the descriptive content of a referentially used definite description plays the role of securing the referent of the singular term.

refer' to" and accordingly the ability to form singular thoughts about any object is "created with the stroke of a pen" (Bach 2004b, 209).[97] The problem Bach is raising can be observed in the following sentence:

(18) DTHAT [the first child born in the twenty-second century] will be bald.

In virtue of (18) following the schematic of (16) the operator creates a singular proposition. The problem is that there is currently no individual that can act as a constituent of the proposition expressed in (18). Accordingly, we would not be able to settle (18)'s truth-conditional content or what is said without the individual's identity being established. An extension of this problem is that the speaker would not be able to entertain a genuine singular thought about that individual (2004b, 209). It is for reasons such as these that Bach takes the proposition expressed by (18) to be, at best, object 'involving' as opposed to object-dependent. Bach claims that such expressions 'single-out' an individual but fail to make reference to it (2004b, 210).[98]

The problem Bach raises with respect to (18) does not materialize with deictic uses of definite descriptions, uses where the object of reference is in fact identifiable by the speaker. In deictic uses of descriptions a speaker may succeed in having a singular thought and expressing a singular proposition, which for Kaplan is enabled through DTHAT. In order for Kaplan to defend his AT the theory need only be correct for one sort of definite description, deictic descriptions could fit the bill. Nevertheless, it would require explaining why deictic uses, such as (17), can carry DTHAT whereas further ones such as (18) cannot. Following this an AT could be forged through the presence or absence of DTHAT and the resultant

[97] Bach's comments are made with respect to the following passage from Kaplan, "[i]gnorance of the referent does not defeat the directly referential character of indexicals…a special form of knowledge of an object is neither required nor presupposed in order that a person may entertain as object of thought a singular proposition involving that object" (1989a, 536).

[98] Bach is keen to point out that this is not a discussion of terminology, but instead the terminological difference points to a substantive difference. In "singling out" we do not necessarily create a singular proposition, and therefore the speaker need not have a corresponding singular thought, whereas in "referring" the act must create a singular proposition in order to be a legitimate act of reference (2004b, 210). An expression 'singling out' an individual can be achieved with a general proposition but a genuine act of reference cannot.

consequences for propositional content, which creates a "duality of function" in the definite article (1970, 224). Irrespective of Bach's claim, Kaplan is keen to defend an AT and it is grounded in the presence or absence of the DTHAT operator.

We can provide a further example to capture Kaplan's AT:

(19) DTHAT [the manager of Manchester United] is angry.

(20) The manager of Manchester United is angry.

The difference between (19) and (20) is just the present of the DTHAT operator. In virtue of this, Kaplan would take (19) to expresses a singular proposition and (20) to express a general proposition. The distinct truth-conditions in the two examples equates to a distinction in what is said by a speaker in using the two. Take *u* to represent an utterance of (19) and *u'* to represent an utterance of (20), the truth-value of both *u* and *u'* will depend upon the same individual in the actual world, in this case Louis van Gaal. It is not until we test the truth-value of each in distinct modal contexts that we see a difference. The truth of *u* in a possible world *w'* will be dependent upon Louis van Gaal again as he is a constituent of the proposition expressed by (19). In virtue of the DTHAT operator causing direct reference, the individual Louis van Gaal remains central to the truth-conditions of (19). Conversely, the truth of *u'* in *w'* is not dependent upon Louis van Gaal. The sentence in (20) expresses a general/object-independent proposition due to lacking the DTHAT operator and hence the proposition it expresses does not contain Louis van Gaal. In (20) its truth in a possible world *w'* will be dependent upon whomever satisfies the descriptive content *manager of Manchester United* in *w'*. Through these modal contexts we can see that Kaplan readily accepts an AT (1970, 227). Finally, the distinction is, according to Kaplan, that of a *de dicto/de re* distinction.[99] We will say more about which of the three ambiguity problems (CAP, GAP1, and GAP2) the theory is concerned with shortly.

[99] This final point is interesting as it something that Kripke explicitly denies (1977, 258).

4.15

SPEAKER'S INTENTIONS

The identification of a referent for a singular term involves a multifaceted process including its linguistic meaning, the utterance context, the speaker's intentions, and further pragmatic machinery. The value that is placed upon each part of this process in the creation of a speech-act will determine the view one is likely to adopt as to the nature of referential uses of definite descriptions. With respect to this, Wettstein asks the following question "[w]hat exactly bridges the gap between the *meagre* lexical meaning of such an indexical expression and its *determinate* reference?" (1984, 64). In order to understand how direct reference theory interacts with wider aspects of communication we should seek an answer to this question.

Reimer (1992) outlines three views with distinct answers to the above question. The three views are distinguished as follows: first of all we have the contextual view, which states that demonstrative (direct) reference is "determined entirely by certain publicly accessible features of the context", secondly we have the intentional view, which states that "speaker intentions are 'criterial' in demonstrative reference", and thirdly we have what is termed a quasi-intentional view according to which "both contextual features and intentions come into play in the determination of demonstrative reference" (1992, 373). According to Reimer, Kaplan's work in DTHAT (1970; 1979a)[100] is defending the third view, the quasi-intentional view.[101]

Reimer notes that speaker's intentions play a role in demonstrative reference but this role is "at most, a limited one" (1992, 374). For instance, take a situation where a speaker intends to inform his audience of the identity of a man in a painting, who he believes to be Rudolf Carnap, and utters (21):

(21) DTHAT [that] is one of the greatest philosophers of the 20th Century.

[100] Reimer references the reprinted copy (Kaplan 1979a), which includes a discussion on intentions involved in disambiguating the referent in an act of demonstration.

[101] The three positions outlined should not, for our current purposes, be confused with contextualism or any form of literalism as outlined in §2.1.

Unbeknownst to the speaker, however, the painting was recently replaced with one of Spiro Agnew and (21) is thereby false. We might understand the act of reference to pick out Spiro Agnew, the context of utterance provides saturation of the indexical with the individual in the picture. The speaker may have intended to refer to Carnap, however they likewise intended to refer to the individual in the painting who they mistakenly believed to be Carnap. As Reimer notes, "the intended demonstratum… failed to emerge as the actual demonstratum" (1992, 373-374).[102]

Nevertheless, certain contexts demand that the speaker's intentions must be involved in securing a referent. Take for instance (22):

(22) DTHAT [that (vague hand gesture)] is Louis van Gaal.[103]

The vague hand gesture, which acts as the mode of presentation, will simultaneously pick out a wide range of referents including, for instance, "a clump of clover, a nearby pond, a neighbour's cat" (1992, 374). Irrespective of this, (22) can be used to say something informative in virtue of it successfully picking out an individual but this will depend upon the "intended demonstratum". According the Reimer, the speaker's intention "has the effect of 'disambiguating' my vague demonstration". In cases such as (22) the context alone is too messy for the audience to identify the appropriate referent and as such recourse to speaker's intentions are central to its disambiguation (1992, 374).

The ensuing discussion should not be thought of as invalidating the claim that what Kaplan has developed is a form of semantic literalism. The first point to rehearse is that the linguistic meaning of a demonstrative expression (which includes referential uses of definite descriptions) determines the role that context plays. As we have stated when outlining indexicalism, the theory remains a form of literalism so long as the role of

[102] A defence of a purely contextual view is given by Wettstein, who believes that "contextual cues and indeed a whole range of extra-contextual cues, provided, e.g. by the social and cultural environment, have semantic significance" and that "[i]t is by such cues that the gap between meaning and reference" (1984, 65). In such a case, the speaker's intentions do not play an operative role in the securing of the relevant referent.

[103] In the foregoing we will capture ostensive acts in standard brackets. An act of demonstration including phonetic material and an ostensive act will therefore appear as [phonetic material (ostensive act)]. In the above we described both as being part of the 'mode of presentation' of the referent and we retain this analysis. The distinct brackets are simply employed to indicate that the ostensive act is non-verbal.

context is that of saturating something demanded by the linguistic meaning of the expression, as opposed to being what we have termed 'free contextual enrichment'. This is upheld in direct reference theory. The role of speaker's intentions is an interesting one, for it is not the case that the linguistic meaning of a demonstrative will change across contexts where the speaker's intentions are to refer to distinct individuals using, for instance, the same demonstrative. For instance, the linguistic meaning of the demonstrative does not change between (23) and (24):

(23) DTHAT [that (vague hand gesture)] is Ronaldo.

(24) DTHAT [that (vague hand gesture)] is Messi.

The individual picked out in the two speech-acts is distinct but this does not affect the linguistic meaning of the demonstrative. Furthermore, speaker's intentions are not included as part of the linguistic meaning, even though, on occasion, they may help in disambiguating a referent for the audience. In cases such as (22)-(24) what is said is still determined by the linguistic meaning of the demonstrative, which is a function from the utterance context to its content. Literalism, in the form of indexicalism, is thus retained.

It is now time to see how Kaplan's AT accounts for the genesis of the three ambiguity problems from §1.1.[104] The solution offered to the CAP is straightforward, Kaplan provides a semantic account of the CAP, and accounts for the fact that a single expression can in one instance be used referentially and in another quantificationally though stating that in the former case the definite description includes the semantic operator DTHAT, which forces an instance of direct reference, whereas in the latter case it does not. DTHAT is part of a referential description's linguistic meaning and what is said in a sentential utterance containing such an expression is thus a singular proposition. When DTHAT is absent the linguistic meaning is dependent upon the descriptive content and what is said is thus a general proposition.

The solution offered to GAP1 depends upon whether we interpret Kaplan as stating that DTHAT can be attached to any definite description whatsoever. When we look at the manner in which Kaplan's theory is

[104] See §1.1 for an outline of the three ambiguity problems.

developed we see that it is primarily involved with understanding demonstrative reference and indexicals. More often than not such expressions are used to make deictic reference, that is, reference to individuals in the context at hand. The motivation for extending this theory to definite descriptions, which Kaplan takes to be quite natural, is potentially the result of the data under consideration. If one is considering deictic uses of definite descriptions, then it is natural to understand them as operating in a manner resembling demonstratives. Hence, if the semantic operator DTHAT is employed in explaining demonstratives, then it should likewise explain deictic uses of definite descriptions.

It is possible to interpret Kaplan's AT as extending to GAP1. For instance, compare (25) and (26):

(25) The manager is angry.

(26) The mother of every child is angry.

It is a reasonable interpretation of Kaplan to understand him as taking (25) to exhibit an instance of direct reference, and we could capture that by adding DTHAT. However, the operator is not as straightforwardly applied to (27). The distinction can be seen with respect to (27):

(27) DTHAT [That mother of every child] is angry.

A natural reading of (27) where it includes the direct reference operator is to understand it as referring to one particular mother (all the children share the same mother), however this is not a standard interpretation of (26). We might reconceptualise Kaplan's theory to state that the DTHAT operator may apply to (25) in virtue of its grammatical form lending it to being used for demonstrative reference, and yet bar it from being applied to (26). If Kaplan were to accept this analysis, then GAP1 would be understood to be explained through semantics. The extension of Kaplan's theory may not be something he himself would admit to. Either way, there would need to be an explanation of why certain definite descriptions were amenable to DTHAT and others were not.

Finally, as for GAP2 Kaplan makes no specific claims. It would seem that Kaplan would answer GAP2 in the negative, and state that any ambiguity in definite descriptions is entirely a matter of whether there is the DTHAT

operator present. Therefore, the wider grammatical configuration in which the definite description falls does not figure in the account. Nevertheless, we can clearly see that Kaplan answers at least one ambiguity problem, the CAP, in the positive, and provides a semantic solution grounded in the presence and absence of the DTHAT operator. Furthermore, Kaplan states that the definite article exhibits a "duality of function" (1970, 224), and we can therefore conclude that the theory is also lexicocentric. It is the lexical specification of the definite article that is ambiguous, and it is its dual function that enables one case to exhibit the direct reference operator DTHAT. Lastly, the duality of function feeds into what is said.

4.16

GROUNDING THE SEMANTIC OPERATOR DTHAT

We have developed the direct reference theory, the semantic operator DTHAT, and the AT that is at the heart of Kaplan's thesis. A given utterance containing an indexical singular term (pronoun, demonstrative, referential description) determines a function that, relative to the context of utterance, fixes the propositional content and provides an individual as a constituent of that content. The linguistic meaning of an indexical includes the semantic operator DTHAT, which determines what is said and produces a singular proposition whose truth depends upon a particular individual. Attached to an indexical expression is a mode of presentation, which may be realised as phonetic material, an ostensive act, and so on. The following examples exhibit part of the range of expressions that the direct reference theory applies to, and those expressions whose linguistic meaning would include the DTHAT operator:

(28) *I* am tired.

(29) *He* is tired.

(30) *That* is covered with books.

(31) *That desk* is covered with books.

(32) *The desk* is covered with books.

The italicized subjects in (28)–(32) contain DTHAT, but have distinct modes of presentation. The variety of expressions that the operator applies to

raises a pressing question, what grounds the existence of the DTHAT operator in the first place with respect to such a wide variety of expressions and yet bans it, for instance, from being applied to referential uses of existential quantification?

To begin with let us repeat examples (19) and (20) above, which illustrate a referential use and quantificational use of the same expression:

(19) DTHAT [the manager of Manchester United] is angry.

(20) The manager of Manchester United is angry.

In the above examples we have the same phonetic material in the same grammatical configuration and yet (19) exhibits an instance of direct reference, which creates a singular proposition, and (20) does not, thereby creating a general proposition. The only discernible difference is the presence/absence of the semantic operator DTHAT. In order to state that the sentence *the manager of Manchester United is angry* is semantically ambiguous it appears the theory's only recourse is to stipulate that the referential use is accompanied by the DTHAT operator and the quantificational use is not. At best this argument is begging the question and at worst it is circular. There needs to be an account of the genesis of DTHAT in referential uses that is not simply stipulated.

If we consider further indexical expressions, then the problem becomes more pressing. Referential uses of indexicals, as in (28)-(31), seems to fit naturally with Kaplan's analysis, yet not all indexicals are so straightforwardly fitted together with the DTHAT operator. Consider for instance (33):

(33) Ronaldo always pressures the goalkeeper and when he does *that goalkeeper* normally makes an error.

A felicitous reading of (33) can be taken whereby the speaker is discussing a general trait in Ronaldo's style of play in which, from game to game, he pressures the opposing team's goalkeeper. In this instance, the complex demonstrative does not pick out a particular individual but instead picks out a different referent from game to game. Seeking to apply the DTHAT operator to complex demonstratives therefore seems less straightforward than it does for pronouns and bare demonstratives. It is true that examples

wherein complex demonstratives are used referentially far outweigh those where they are used attributively, but the existence of such examples raises doubts as to the straightforward application of the operator to all seemingly indexical expressions. As with (19) and (20), we need a principled way of segregating expressions to which DTHAT applies and those to which it does not.

It is not sufficient to state that referential uses of definite descriptions and complex demonstratives constitute a linguistic convention, and we cannot simply ground that convention through reference to the presence of DTHAT. The presence of DTHAT merely formalizes the convention once it has been accepted, and, critically, accepted as grounded in semantics. The problem may well be rooted in the fact that DTHAT, as employed in referential descriptions, is a property of the lexical entry for the definite article, the theory is lexicocentric. Its presence or absence in a definite description thus seems arbitrary and dependent upon what reading we intend to come out at the end. At this point we can delve a little deeper into the grammar of DPs, wherein we might find an answer for the existence of the convention in the first place as well as the explanation for definite descriptions and complex demonstratives being ambiguous.

It standardly assumed that arguments in natural language are to be found in DPs, which contain a determiner (D) and a noun phrase (NP) complement:

(34) [D [NP]]

In addition to the structure in (34), there is evidence to suggest that DPs extend further to include, at least, a deictic projection (DeixP) and a further determiner later (D$^{\#}$P) in its edge (Martin & Hinzen 2014; for similar ideas see Zamparelli 2000b; Leu 2008):

(35) [D$^{\#}$ [Deix [D [NP]]]]

With the extended projection for D, we begin to get a clearer grammatical differentiation for (28)-(32), which reflects the referential, or ambiguous, functions they exhibit. To begin with, (28) and (30) are captured as follows:

(36) [D I [DEIX Ø [D Ø [NP Ø]]] am tired.[105]

(37) [D Ø [DEIX that [D Ø [NP Ø]]] is covered with books.

To reiterate what we said in §3.342, the structure from D onwards, D, Deix, D#, is the DP phase edge, and NP is its interior. Following Martin & Hinzen's analysis, we can state that the edge is the locus of reference and it contains those expressions that are univocally referential (2014, 102; see also Sheehan & Hinzen 2011; 2013). When the edge is filled and the interior is empty, we only get the strongest possible forms of reference, personal reference and non-descriptive deictic reference. Additionally, note that in these cases there is no ambiguity problem, and DTHAT may be posited in each case (if we choose to defend a DTHAT analysis) without controversy.

Moving on, we will note that in (31) and (32) both the edge and interior are filled:

(38) [D Ø [DEIX Ø [D that [NP desk]]] is covered with books.

(39) [D Ø [DEIX Ø [D the [NP desk]]] is covered with books.[106]

To begin with, it is worth quickly stating that the NP in (38) is optional, whereas it is demanded in (39) in order for the sentence to be felicitous. We will make use of this distinction to argue that the linguistic convention for using complex demonstratives referentially is stronger than that for definite descriptions. The forms of reference exhibited by (38) and (39) are weaker than (36) and (37) as is illustrated by the fact that the referent they pick out need not be contextually salient. The idea we will pursue in §5 and §6 is that when the edge and interior are both filled we get the potential for ambiguity, which is meant to explain the distinction between (19) and (20) as well as (33).[107] An analysis of the grammar of DPs alone will not explain when a complex demonstrative or definite description can exhibit DTHAT, but it does help illustrate why they are ambiguous and yet other expressions, (36) and (37), are not. Further to this, when the entire edge is

[105] Martin & Hinzen suggest that first person pronominal reference exhibits D-to-D# movement (2014, 102). Nothing in the present debate turns on this. The symbol Ø indicates that the syntactic category is empty.

[106] In §6.11 we will argue that the DeixP is filled with phonetically null deictic information, insofar as the DP is used for deictic reference.

[107] We will have to make use of further grammatical work to fully explain (19) and (20) that will be introduced in §5 and §6.

empty and only the NP is filled we get a purely predicative (or descriptive) reading:

(40) I enjoy watching [D ∅ [DEIX ∅ [D ∅ [NP football]]]].

In (40) we cannot add DTHAT to the DP as there is no way to get it to exhibit direct reference.[108] Critically, the presence or absence of DTHAT is not dictated by the lexical items but by the grammar of DPs, it is not lexicocentric. It is in such work that we might be able to ground a non-stipulated account of the presence and absence of DTHAT in arguments. However, even if we did that the distinct forms of reference that each type of argument exhibited would not be captured besides in their mode of presentation.

The point we are getting at is that Kaplan's AT does not distinguish the arguments that always exhibit strong reference (personal pronominal and bare demonstratives) from those that are ambiguous (complex demonstratives and definite descriptions), through employing the DTHAT operator. Furthermore, there is no account of the linguistic convention for using definite descriptions referentially over and above the presence of a DTHAT operator. We can conclude this section with the observation that a thorough investigation into the grammar of DPs may well provide insight into the ambiguity problems.

4.2

A NEO- FREGEAN THEORY

The second AT that we will analyse comes from Devitt (1974; 1981a; 1981b; 2004; 2007a; 2007b). Devitt also defends the existence of a semantic ambiguity in definite descriptions, but unlike Kaplan he does not take referential uses to be instances of direct reference (1990; 2012b). Devitt's theory rejects the claim that the only semantic contribution of a referential description to truth-conditional content is the individual it picks out.[109] Instead, he defends the view that the descriptive content is both

[108] There is reason to believe that the grammar of DPs produces a 'hierarchy of reference', with referential strength increasing as the interpretation rests heavier on the phase edge (Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014).

[109] Additionally, Devitt claims his view is not committed to the idea that referential descriptions are rigid designators (2004, 295-296).

semantically operative and part of the proposition expressed. It is part of what is said. It is the inclusion of descriptive content into the propositional content that leads Recanati to call the view neo-Fregean (1993, 32). It states that a definite description contributes both descriptive content and an individual to the semantic content of a proposition it is part of.

4.21

THE CAUSAL THEORY

Devitt's theory of descriptions is founded in the idea that a causal chain of communication exists between a singular term and its referent (1974, 186). The idea at work here is similar to that employed by Kripke with respect to proper names (1981, 59n). However, Devitt extends the analysis to cover pronouns, bare and complex demonstratives, and referential uses of definite descriptions (1981a; 1981b). Within this theory, it is the existence of a causal chain between an utterance of a singular term and the particular individual it picks out that allows it to refer. Causal chains are the mechanisms that enable reference. The defence of a semantic ambiguity is then formed with respect to causal chains, referential uses of descriptions form causal chains with the particular individual that they pick out whereas attributive uses do not.

4.22

CAUSAL CHAINS

In order to understand the theory we should first say something about what constitutes a causal chain and how referential uses of descriptions come to be associated with them. The first point to recognise is that the theory is developed in a similar fashion to the concept of rigid designation developed by Kripke. To recall, a term is taken to be a rigid designator if and only if it designates the same individual across all possible worlds in which that individual exists.[110] The quintessential rigid designators are proper names. According to this view, rigid designators are linked to their referents through a 'causal chain of communication', which is passed down through the linguistic community enabling a speaker to use a rigid

[110] Kripke defines rigidity as follows, "[l]et's call something a rigid designator if in every possible world it designates the same object, a non-rigid or accidental designator if it is not the case" (1981, 48).

designator without the referent being present (1981, 59n). Rigid designators 'stand for' the individual that they are linked to through this chain of communication/causal network.

Nevertheless, there needs to be a point at which the causal chain is initiated, which might be labelled the 'initial baptism' of the referent with the name. Devitt terms such a baptism a 'naming ceremony'. For instance, take the name *Aristotle* and the individual Aristotle to whom it refers. At some point in time there was a naming ceremony wherein the referent became tied to the name. Following this, through a causal network the name was passed down through the linguistic community enabling people to rigidly designate the individual Aristotle with the name *Aristotle* without ever having met the man. In Devitt's words:

> [t]he central idea of the causal theory of proper names is that our present uses of a name, say 'Aristotle', designates the famous Greek philosopher Aristotle, *not* in virtue of the various things we (rightly) believe true of him, but in virtue of *a causal network stretching back from our uses to the first uses of the name to designate Aristotle*. Our present uses of a name *borrow their reference* from earlier uses. It is this social mechanism that enables us all to designate the same thing by a name. (1974, 184)

As we will see, Devitt employs a similar tactic in order to explain the semantic significance of referential uses of definite descriptions.

The naming ceremony, as described by Kripke, involves fixing the referent for the rigid designator. This process may take place through the employment of a definite description but that does not mean that the description becomes part of the meaning of the name. To clarify, Kripke states that "the idea of fixing a referent" is "opposed to actually defining one term as meaning the other" (1981, 60). The procedure involved in a naming ceremony is described by Devitt as follows:

> They [the audience] *perceived* the ceremony, using at least their eyes and ears. To perceive something is to be causally affected by it. As a result of the effect it had on them, they were in a position to use the name *Nana* later to designate a cat. What

> they gained at the ceremony, it seems appropriate to say, was 'an ability to designate by Nana by *Nana*'. (1974, 185)[111]

It is in situations like this that the causal network associated with a name is established. Through witnessing this event those present gain the ability to begin employing the name as a rigid designator. Devitt labels these causal chains 'designating chains' or 'D-chains' (1981a, 515).

The concept of a D-chain is meant to capture the manner in which all singular terms are tied to their referents. The theory is not one concerned with just explaining proper names, as Devitt states "it is plausible to think that deictic demonstratives and personal pronouns involve such a convention" (1981a, 516). In order words, the employment of a D-chain is a linguistic convention that helps to explain how such terms are capable of being used referentially in the first place. Therefore, when using singular terms "a certain object participates in the referential convention and thus exploits the causal-perceptual link to that object; a hearer participates in the referential convention and thus takes account of clues to what has been exploited" (2007a, 22). We might think of the employment of a D-chain as a linguistic skill. If a speaker is competent with respect to a certain language and using singular terms, then they will be able to make use of these D-chains. This ability is part of a competent speaker's linguistic arsenal.

4.23

THE GENESIS OF AMBIGUITY IN DEFINITE DESCRIPTIONS

The account of the genesis of the ambiguity problems provided by Devitt involves a distinction between D-chains and what he terms 'attributive chains' (A-chains). The ambiguity is formed by stating that referential uses of descriptions are enabled by D-chains, what he calls 'designating descriptions' or D-descriptions, whereas quantificational uses are attached to A-chains, what he called 'attributive descriptions' or A-descriptions (1974, 196-198; 1981a 516-517; 2007a, 22).[112] A distinction between the two is founded upon the idea that it is only the D-descriptions that 'designate'

[111] Italics of *Nana* added.

[112] Interestingly, Devitt carries this analysis over to names stating that we get a distinction between D-names and A-names, thereby committing to the idea that certain names are attributive (1974, 196).

their object (1974, 198).[113] As previously stated, Devitt understands referential uses of descriptions (D-descriptions) to be instances of a linguistic convention, which he defines as follows:

(41) There is a semantic convention of using 'the *F*' to refer to *x* which exploits both a causal-perceptual link between the speaker and *x* and the meaning of '*F*'. (2007a, 22)

The linguistic convention is labelled semantic (rather than an example of a generalized implicature as in the Russellian QT) and it creates a causal network with the individual through the descriptive content of the definite description.

Let us return to the CAP and see what Devitt has to say about Donnellan's courtroom example, which was elucidated in §1.2. The speaker who utters (42) is taken to have the individual Jones in mind and believes that their utterance will pick him out:

(42) Smith's murderer is insane.

In virtue of this we can say that the speaker succeeds in communicating a singular proposition to her audience. Devitt analyses the situation as follows, "[i]t was *because of* our experiences of Jones during his trial, and our beliefs about him, that we used 'Smith's murderer' in that utterance… In a sense, *the object itself* leads us to use the particular definite description in such cases" (1974, 191). A D-chain is thereby created between *Smith's murderer* and Jones. The D-chain enables the expression to be a designating expression. The linguistic meaning of the possessive *Smith's murderer* is referential and what is said in an utterance of (42) is a singular proposition. As the theory behind D-chains is meant to cover a wide variety of expressions labelled singular terms, we can say that a process similar to that described above is applicable to pronouns, bare and complex demonstratives, and proper names (1981a, 517).

The analysis given above might appear to suggest that Devitt reserves the existence of D-chains, and by extension the label of D-description, to

[113] Devitt also takes anaphoric descriptions to be instances of d-descriptions, which are explained in virtue of the anaphoric element borrowing "characteristics from the singular term on which it depends" (1974, 197). The causal network is formed between the singular term and the referent, which the anaphoric element then latches onto.

instances where a definite description is used deictically. If we recall the concept of the naming ceremony and the fact these chains are meant to be causal, then it is natural to take referential uses to form a causal network through the fact that the referent is close to hand. That is, it might be understood that the only way to ensure that causal network is upheld with a definite description is to have direct access to the referent at the time of the utterance. However, Devitt denies this and wishes to defend the idea that a D-description can occur when the intended referent is in actual fact absent. For instance, an utterance of (43) can count as a D-description even in the absence of the intended referent:

(43) The manager of Manchester United is angry.

If the speaker who utters (43) is aware of the causal network that links the definite description to the intended referent, then an utterance of (43) may likewise connect with a D-chain and thereby express a singular proposition. The linguistic convention to refer using a definite description, and the semantic grounding of this convention in D-chains, is thereby available whenever an accessible causal network is. An instance of (44) however would fail to connect with such a network:

(44) The largest animal in the world is a whale.

The causal network for (44) is not established and hence there is no D-chain to link the definite description and the referent. That is not to say that such a D-chain is impossible, it is not denied access to a D-chain in principle, but simply to state that the speaker would not be in a position for her utterance to connect with it. The example in (44) therefore constitutes an A-description (1981a).

In order to solidify the theory as one concerned with semantics, Devitt states that the role of D-chains "has a crucial bearing on truth" (1974, 202).[114] We can understand the role that D-chains have on truth through the Smith/Jones case raised by Kripke and analysed in §3.23. Let us recall the example where the speaker misidentifies Smith as being Jones and utters (45):

[114] The argument put forward to defend the semantic dimension of Devitt's theory can be readily extended to cover the pragmatic thesis offered by the Russellian that accepts the relevance of a speaker's referent to communicative efficacy.

(45) Jones is raking the leaves.

Devitt provides the following analysis. The speaker employed a D-chain, and consequently a D-name, which was intended to pick out the salient individual Smith. However, the speaker misdescribes the individual. Therefore, according to Devitt the speaker is taken to partially denote Jones and partially denote Smith.[115] The first partial denotation is made through the fact that the name *Jones* is causally linked to a particular individual Jones (who is not present). The second partial denotation is made through the idea that the name *Jones* is linked through a causal/perceptual chain (a D-chain) to the salient individual Smith. Accordingly, the audience, in not knowing any better, holds two distinct beliefs, "the true one that that man (pointing to Smith) is raking the leaves, and the false one that that man (pointing to Smith) is Jones" (1981a, 514). The impact on truth-conditions is formed by whether we take the D-chain formed through the causal network to Jones or the one formed with the salient individual Smith. It is this that Devitt points to in order to account for our conflicting intuitions as to whether what the speaker said was true or false. Additionally, we cannot take recourse to the concept of a speaker's referent due to the fact that it is unclear which individual would emerge as the correct one. In other words, the two D-chains are both partially constitutive of the truth-conditions expressed by (45), which is not the case with A-descriptions.

The distinction between D-descriptions and A-descriptions is semantic, and it is meant to account for the genesis of, at least, the CAP. Moreover, the theory states that whilst both types of definite description have semantically operative descriptive content, it is only referential uses that employ the descriptive content to employ a D-chain. It is only D-descriptions whose descriptive content connects with a causal chain. The theory is at odds with the direct reference theory discussed above as it accepts that the descriptive content is more than a mere 'mode of presentation' of the referent, but it is in fact responsible for the emergence of an appropriate D-chain. Critically, the defence of the view is founded upon a strong commitment to referential uses of definite descriptions being an instance of a linguistic convention. It claims that the frequency and

[115] Devitt introduces the concept of a partial denotation to be understood in a manner similar to Field's idea of certain scientific terms being 'referentially indeterminate' (1974, 202).

consistency of such uses speaks in favour of a semantic account of referential uses.

4.24

REFERENTIAL USE AND LINGUISTIC CONVENTION

We have stated numerous times that Devitt defends the semantic significance of referential uses of definite descriptions on the basis that such uses constitute a linguistic convention. The critical question to ask here is how this linguistic convention lends support to the idea that referential uses are grounded in semantics. In Devitt's words:

> When a person has a thought with a particular *F* object in mind, there is a regularity of her using 'the *F*' to express that thought. And there need be no special stage setting enabling her to conversationally imply what she has not literally said, nor any sign that her audience needs to use a Gricean derivation to understand what she means. This regularity is strong evidence that there is a convention of using 'the *F*' to express a thought about a particular *F*, that this is a standard use. This convention is semantic, as semantic as the one for an attributive use. In each case, there is a convention of using 'the *F*' to express a thought with a certain sort of meaning/content. (2004, 283)

The above passage outlines the core tenets of Devitt's theory, referential uses of descriptions are instances of a linguistic convention, that convention is semantic and part of 'what is said', it requires no special 'stage-setting', it is not to be considered a Gricean implicature or part of pragmatic machinery, and, finally, referential uses are as semantic as the attributive ones. Therefore, Devitt explicitly denies that referential uses merely communicate or imply singular propositions as argued by the Russellian QT (2007a, 17).

One question that raises doubts over Devitt's theory comes from a Russellian standpoint, and it concerns whether the same convention is present in standard quantifier phrases, given that they too can be used referentially. Consider (46):

(46) Someone broke the window.

In a situation where the speaker and a member of the audience are aware of the culprit, who we shall name Wilson, (46) can be used to communicate a singular/object-dependent about that individual. Nevertheless, such uses are not frequent and require 'special stage setting'. As Devitt notes, "with enough stage setting almost any expression can be used to convey almost any thought" (2004, 283). It is the fact that no such stage setting is required for definite descriptions to be used referentially that we can understand such uses as a linguistic convention, and a semantic one at that.

Another point that Devitt raises in favour of the semantic significance of referential uses has to do with how speakers identify the appropriate referent. According to him, the Russellian theory requires an account of the pragmatic machinery that makes the connection between what is said and what is implicated, it is not enough to simply state that the individual is 'salient' or 'what the speaker intends' as this merely "labels the problem without solving it" (2007a, 24). Alternatively, Devitt believes that his theory straightforwardly answers the question of how we identify the referent of a definite description. In his own words:

> [w]hat provides the needed identification is the referential meaning of 'the *F*', a meaning established by the convention of exploiting causal-perceptual links between thoughts and objects… [t]he referential use of a definite, like the use of a demonstrative or pronoun, makes the object of thought salient to the hearer because she participates in the appropriate referential convention. (2007a, 24) [Italics omitted]

The disambiguation of the appropriate referent is tied to the mechanism of the causal-network/D-chain that is formed between the speaker, the utterance, and the referent, all of which come together in a linguistic convention that shared by the audience. The solution will seem unsatisfactory to the Russellian. The Russellian will likely already accept that speakers interact with a referential convention, but simply state that it is grounded in pragmatics.

To avoid this Russellian counter, Devitt must provide a satisfactory answer to the following question, how is it the case that a linguistic convention becomes a semantic fact? In answering this question we will analyse Reimer's argument by analogy, which is an argument that Devitt endorses in support of his position (2004, 285). The argument goes as follows. Take

an expression ζ whose linguistic meaning is *m*, in time a non-literal meaning of ζ, which we will term *m'*, might become a conventional linguistic meaning of ζ. In this case, the expression ζ can in one instance mean *m* and in another *m'*, as both are now conventional meanings of ζ. Reimer invites us to consider the word *incense*. The word *incense* can be used to express the proposition that an individual became angry:

(47) Ronaldo was incensed at the decision.

The intended reading of (47) is now commonplace and can be understood as a conventional way of using the word *incense*, however the verb originally meant 'to make fragrant with incense'. Hence, the use that we observe in (47) originated as a metaphor and over time became a linguistic convention. As Reimer notes, "the metaphor is dead: due to its frequent use, its former metaphorical meaning has become one of its (two) literal meanings" (1998, 97). The idea is that the previously metaphorical meaning has become standard, and that "the fact that an expression is *standardly* used to mean such-and-such suggests that it can be used – literally- to mean such-and-such (1998, 98). The metaphorical use is thereby established as a semantic convention.

It is the increased frequency of uses such as (47) that saw the literal meaning of the verb *incense* extended to include a second standard meaning. With an increased frequency of usage language hits a tipping point at which a once metaphorical meaning of a term becomes a literal meaning, and is thus subsumed as part of that terms semantic content or linguistic meaning. The standard meaning is understood to be "grasped *immediately*: that is, without the mediation of any Gricean-style inferences" (1998, 98). If the process described above is true for the verb *incense*, then might it explain referential uses of descriptions?

It is clear that referential uses of descriptions are ubiquitous, so should we understand them as being 'grasped…without the mediation of Gricean-style inferences'? Devitt readily applies this analogy to definite descriptions:

> [p]eople do not now grasp what speakers commonly mean by the verb 'incense' in that Gricean way…[a]nd people do not grasp what a speaker means by a referentially used definite in that way either. Rather, they grasp the meaning immediately

> and directly because that is the meaning it conventionally has. (2004, 285)

The fact that such uses are standard means that there is no need to fall-back on Gricean implicatures to explain their existence. The semantics does the job before pragmatics gets a look-in.

The idea behind referential descriptions being a linguistic convention is defended, at least in part, by analogy to dead metaphor (as exhibited in the verb *incense*). In outlining the concept of a dead metaphor, Reimer states that an expression can subsume a previously metaphorical meaning as one of its standard, and hence literal, meanings. However, the extension of this idea to referential descriptions is not a straightforward as it might appear. The story given for the verb *incense* is questionable, and, further to this, what reason do we have for thinking that a grammatically complex word, such as the definite article, can be given a similar analysis. Let us consider these points in turn as they will raise doubts over the legitimacy of the argument from analogy.

To begin with, the idea behind the verb *incense* being an instance of a single expression with two standard meanings may be questioned. For instance, it is not uncommon for one phonetic label to be attached to two or more distinct meanings and consequently two or more distinct lexical items. Consider the phonetic label *bank*, if we are to understand this label as picking out a single lexical item, then that lexical item has a variety of meanings including: 'the land alongside or sloping down to a river or lake', 'a long, high mass or mound of a particular substance', 'the cushion of a pool table', 'a financial establishment', 'a stock of something', and so on. Each of these meanings constitutes a standard use of the phonetic label *bank*, but are we to assume from this that the label stands for a single lexical item with a wide range of conventional meanings. The answer to this is clearly no. Instead, we understand these distinct meanings as captured in distinct lexical items, which share a phonetic label and are hence homonyms. There are numerous examples of homonyms in English as well as cross-linguistically and perhaps the example of *incense* given above is one such instance. The original meaning of *incense* remains as one of its possible literal meanings, but once the metaphorical meaning becomes standard what is to stop it becoming a distinct lexical item in its own right? In proposing this idea we can retain the view that the two words share the

same source and hence the new lexical item's etymology will be tied up with the original term. Nevertheless, there is nothing to stop the new conventional meaning for *incense* being subsumed under a new lexical item, particularly as we progress through generations of new speakers. The two uses are equally well explained by speakers employing distinct lexical items.

Another problem is how the story for *incense* informs us about the semantics of the definite article. It may be plausible to take the two meanings associated with *incense* to indicate the existence of two lexical items, but it is much harder to make this claim with respect to the definite article. One reason for this is that the two meanings for *incense* are based in idiosyncratic descriptive information, whereas the two potential meanings for *the* concern functional information. The word *incense* is a descriptive word, whereas the word *the* is grammatical or functional. Nevertheless, pursuing the idea that the article has two distinct lexical entries, one capturing a referential function and one capturing an attributive function, we might expect this to be reflected in at least one language. There is no evidence in English that such a distinction can be made, and there little to no cross-linguistic evidence either (for more discussion on this possibility see Amaral 2008).[116] One important thing we can draw from this discussion however is that both Reimer and Devitt defend a lexicocentric conception of the semantics of the definite article.

The distinction between descriptive/lexical and functional/grammatical words raises further doubts over the argument from analogy. Within a syntactic derivation, descriptive words like *incense* are merged into lexical categories (N, V), whereas the definite article is standardly analysed as falling in a functional category (D).[117] Lexical categories contain 'items with idiosyncratic descriptive content', whereas functional categories contain words that have 'no descriptive/lexical content' and 'serve an essentially

[116] Amaral considers evidence for the existence of two distinct determiners that correspond to the two uses in Malagasy (Keenan & Ebert 1973) and the Monchengladbach dialect of German (Hartmann 1982).

[117] The word category here should be understood as a syntactic projection. For instance, the phrase DP is headed by the category D. For the purpose of the ensuing discussion we will state the distinction as one holding between words, however that is not strictly true. The distinction is actually formed between syntactic projections, it is a distinction between lexical projections and functional projections. We will return to this distinction and provide a thorough analysis in §5.21.

grammatical function' (Radford 2004, 454-460). Traditionally understood, functional categories are grammatically complex and their role in a sentence goes beyond their dictionary definition through organizing the content provided by the lexical categories. Additionally, it is impossible to define a word that is associated with a functional category without reference to the larger grammatical configuration within which it is found. In other words, once we investigate the meaning of words such as the definite article we go beyond standard 'lexical semantics' to investigate 'compositional semantics'. Indeed, this is one of the arguments against lexicocentric views. It is possible to list a dozen examples of dead metaphors for words associated with lexical categories, but no such examples exist for words associated with functional categories. It is for reasons such as these that we should deny the existence of a lexical ambiguity in the definite article, as the meaning of such a term is heavily impacted by grammatical structure.

The above passages might suggest that we are attempting to undermine the idea that referential uses of descriptions are instances of a linguistic convention, but this is not the case. All we wish to say is that the argument provided by Reimer and Devitt, which seeks to illustrate how a linguistic convention becomes a semantic fact, fails. Nevertheless, the referential uses are cases of a clear linguistic convention and Devitt is correct to note that they exist without any special stage setting or conscious effort on the part of the speaker or audience. As will come as no surprise, we wish to defend the view that the linguistic convention arises through grammatical facts. We have already provided one reason to think that the linguistic convention is based on grammar through our analysis of DPs in §4.16. In what follows we will further strengthen this account through reference to cross-linguistic evidence. The evidence will illustrate a close relationship between the definite article and distal demonstratives.

There are many languages across the world that lack the definite article but nevertheless have the same communicative power as those with them. This raises a question. How do such languages achieve the same communicative results when using an utterance that would be associated with a definite description in English? Historically, the definite article in English is understood to have emerged from demonstrative pronouns (Christophersen 1939). With demonstrative pronouns traditionally

analysed as being referential, could this possibly explain the referential linguistic convention for definite descriptions? Did they emerge as a type of demonstrative? The emergence of the definite article system in English can be understood in more clarity once we look at cross-linguistic evidence.

We can shed some light on the linguistic convention of referential uses of descriptions by looking at Montagnais. Montagnais is an Algonquin language that lacks an article system. However, it has a rich system of demonstratives. Demonstratives are traditionally split into two types, distal and proximal, which are distinguished in terms of what we will term 'locational' information. Distal demonstratives are typically employed to pick out an individual that is far from the speaker (*that*/*those*), whereas proximal demonstratives are used to pick out an individual that is close to the speaker (*this*/*these*). Critically, a bare demonstrative includes this locational information. The first interesting point about Montagnais is that the distal demonstrative can function as a non-deictic or anaphoric element, but when it does the locational information is no longer interpreted (Cyr 1993, 205). Additionally, Cyr observes that there is a correlation between the grammatical configuration in which the distal demonstrative falls and how it is interpreted (as a standard demonstrative/definite article). In Cyr's words, "the pre-posed demonstrative noun-determiners of Montagnais may be real definite articles, while the postposed ones may be genuine demonstratives" (1993, 207).[118] For instance, in (48) below *ne* acts as a referential definite article:

(48)	Ek	ne	assi	kau	ekue	tshishishaukut
	And then	DEF	Earth	anew	then	it-is-heated-up-by
	pushum.					
	Sun.					

'And then the Earth started over again to be heated by the sun.'

Critically, the definite element *ne* in (48) does not carry any locational information surrounding the distance of the object from the speaker (1993,

[118] We can place this idea within a cross-linguistic context, "[i]f this is the case, however, Montagnais, contrary to English and French, for instance, but similar to many other language with a definite article system, does not make any morphological distinction between definite functions, demonstrative functions or pronominal third person functions. The morphological identity of articles and demonstratives would hence make Montagnais more similar to a language like Ute and Swahili" (1993, 207).

199-201). These observations are made in relation to a thorough investigation of a Montagnais corpus, which illustrates a strong correlation between pre-posed demonstratives and their interpretation as referential definite descriptions with the locational information 'bleached' (1993, 214-216). This is enough for Cyr to conclude that Montagnais has a definite article, which has emerged from the demonstrative system. The emergence of a syntactic category that is indistinguishable from definite articles but yet emergent from demonstratives gives us further reason to support the idea that the linguistic convention of referential uses of definite descriptions is the result of a close-knit relationship with demonstratives.[119] Therefore, we might think of the definite article as a demonstrative that has been bleached of its locational information, thereby making it more amenable to quantificational uses whilst retaining a standard referential use.

It is worthwhile saying something more about the idea of demonstratives containing 'locational' information and the contrast that creates with articles. This will help illustrate how deictic uses of demonstratives and definite descriptions emerge, which are the standard examples used to defend the referential convention for definite descriptions. As stated, there exist, at least, distal and proximal demonstratives, which are distinguished in virtue of containing implicit information regarding the location of the intended referent. The locational information might be stated as follows:

(49) That = [The + there]

This = [The + here][120]

It is the nature of this locational information that creates a strong link between definite articles and distal demonstratives as opposed to proximal ones. For instance, definite articles can be replaced by the distal demonstrative whilst retaining the semantic integrity of the original sentence more frequently than they can with proximal demonstratives. This can be illustrated in epithet constructions:

(50) John is such a bad driver; the idiot will get himself killed one of these days.

[119] In a similar vein, Huang notes that in certain dialects of Mandarin the distal demonstrative is used in a manner that suggests it too is acting as a definite article (1999, 92).
[120] Similar ideas have been explored by Elbourne (2005) and Leu (2009).

(51) John is such a bad driver; that idiot will get himself killed one of these days.

(52) *John is such a bad driver; this idiot will get himself killed one of these days.

As we can see, the article in (50) can be replaced by a distal demonstrative in (51) and express the same proposition, which is difficult to interpret from (52). Additionally, it is seemingly a cross-linguistic fact that when a language wishes to use a demonstrative but has no use for the locational information it opts for the distal, not the proximal demonstrative (Cyr 1993, 1999; Huang 1999, 92).

We might therefore begin to understand the definite article as a distal demonstrative that has had the locational information bleached from it. In virtue of this bleaching, the definite article becomes less deictic and thereby weakens its demand to be interpreted referentially, thus giving rise to the ambiguity. Additionally, the demonstratives can appear without a NP complement whereas the definite article does not. This suggests that the locational information attached to demonstratives seemingly plays the role of descriptive content that would otherwise be present in the NP. When that information is bleached, as in the definite article, the element must be accompanied by a filled NP. All of this points towards a strong relationship between the distal demonstrative and the definite article and provides part of the explanation that we will provide for referential uses being instances of a linguistic convention. The foregoing discussion casts light on the linguistic convention associated with referential uses of definite descriptions, but has offered a grammatical, rather than lexical, thesis through cross-linguistic evidence.

To rekindle Devitt's AT we might ask how it is that we discern whether or not a particular definite description connects with D-chain to create a referential use. Devitt claims that the linguistic convention provides a good reason to accept that the linguistic meaning of a referential description is constitutive of what is said. In his own words, "what is said by an utterance of a sentence, S, is determined by the conventional meaning of S according to the semantic conventions participated in by the speaker in making the utterance" (2007a, 11). Reference fixing is determined by D-chains, and these chains are enabled through the linguistic convention associated with

referential uses of descriptions, which, critically, are part of the linguistic meaning of such utterances. Therefore, the position defended is inherently tied with how the linguistic convention arises and stands or falls based on this. We have provided a distinct account of the linguistic convention, but it is not formed through D-chains. It is instead formed through the close grammatical relationship shared between the definite article and the distal demonstrative, a relationship that will become even clearer once we analyse the grammar of DPs more carefully in §5.342.

The work on Devitt illustrated a further AT that is present in the literature, which takes referential uses to be a linguistic convention and that this convention must be captured in their semantics. It is now time to see how Devitt's theory handles the three ambiguity problems from §1.1 (which are repeated above in §4.15).

The solution offered to the CAP is as follows, a given utterance ζ containing a definite description can in one context be used attributively and in another referentially as a result of the two exhibiting distinct semantic conventions. The referential use of a definite description is explained through the semantic convention that speaker's partake in, which consists in a causal network (D-chain) that exists between the utterance and a particular individual. In such a case, the truth-conditional content or what is said is such an utterance is a singular/object-dependent proposition. Alternatively, the attributive use of a definite description is explained through no such D-chain existing to link the utterance and the intended individual. Therefore, the explanation of the genesis of the CAP is semantic.

As for GAP1, it is likely that Devitt will reject it in virtue of his account of the CAP. The idea behind his theory is that referential uses of definite descriptions are enabled by D-chains, and hence any definite description is in principle available to use referentially just so long as the speaker can engage with the D-chain that links the utterance and speaker. However, Devitt's examples of referential uses, and their similarity with deictic demonstratives, appears to suggest that he would defend the view that certain definite descriptions are more amenable than others to referential uses. It might be understood that sentences containing definite descriptions wherein the article may be exchanged for a demonstrative more frequently exhibit referential uses than those whereby the demonstrative would alter the communicative efficacy. Therefore, Devitt's theory suggests that the

grammatical structure of a definite description may make it more inclined to be used referentially although this is not explicitly defending, however in principle any definite description once supplied with a D-chain may exhibit a referential use.

Finally, as for GAP2 the solution Devitt will offer is most likely the same as we have outlined for GAP1. The grammar of certain sentential utterances may make them more inclined to be used referentially, but in principle any sentence containing a definite description can be so used. Therefore, Devitt defends a semantic genesis for at least one of the ambiguity problems, and that this solution retains the core insight of literalism that there is no requirement for free contextual enrichment (the referential use is grounded in linguistic meaning), and is a lexicocentric view (the article itself is ambiguous).

We have now provided an analysis of the Russellian QT and two ATs. In each case we observed that theories uphold semantic literalism and are lexicocentric. Throughout §3 and §4 we have provided reasons to think that analysis of grammatical structure, in particular that of DPs, might illuminate an alternative account of the three ambiguity problems. In §5 we will build the grammatical theory of meaning that we take to constitute the skeleton or blueprint for compositional semantics. The analysis will be required prior to its direct application to varying forms of definite descriptions. Critically, our theory will provide an alternative to literalism and contextualism that has framed the descriptions literature so far discussed. Additionally, we will see that a lexicocentric theory of descriptions is no longer tenable once grammar has been understood as productive in the construction of semantic content, linguistic meaning, and what is said.

5

GRAMMAR, LINGUISTIC MEANING, AND 'WHAT IS SAID'

So far we have analysed the Russellian QT (§3) and two ATs from Kaplan and Devitt (§4). In rejecting each view, we argued that each adhered to a lexicocentric conception of semantics and thus failed to provide thorough scrutiny of determiner phrases (DPs), which in turn negatively impacted the account of the ambiguity problems that they were designed to solve. The Russellian QT gave a pragmatic account of the three ambiguity problems, whilst the two ATs gave a semantic account. In what follows we will provide reason to think that a third route may be preferable. The third route takes compositional semantics to be grounded in grammar, as opposed to the semantic-types assigned to lexical items. We will label this a 'grammatical theory of meaning', and it will provide the backbone to our grammatical thesis (GT) for definite descriptions to be given in §6.

The following chapter will develop two interrelated arguments. The first is that syntactic structure is productive in the composition of semantic content, and the second is that it fully specifies linguistic meaning as well

as what is said. To this end, in §5.1 will argue that the study of natural language syntax, as exhibited in generative grammar, can be understood as an explanatory and naturalistic method for studying a universal property of our species. Next, in §5.2 we will advance this argument in line with developments in linguistic minimalism, which will involve an analysis of the faculty of language (FL) and its component parts. Through this syntactic analysis, in §5.3 we will argue that much of what is traditionally posited as part of a semantic faculty (C-I) is in actual fact explained through syntax. Moreover, we will provide an analysis of three core parts of syntactic derivations (C, *v**, and D), and argue that we can reduce the machinery posited in C-I to aspects of phase based derivations. As a working guide, we will attempt to see how far we can push Hinzen's claim that syntax is the 'skeleton of thought' (2009b), a blueprint for compositional semantics, and, more important, a non-lexicocentric account of reference. Lastly, in §5.4 we will revisit the topic of linguistic meaning and what is said through a strategic development of Strawson's idea that a theory of meaning provides general directions for use (1950; 1961). It will be argued that the three phases C, *v**, and D provide specific instructions for using expressions, and we will take these instructions to constitute linguistic meaning. Through this analysis, we will then turn to explain how the grammar of a particular utterance can be understand as fully specifying what is said. We will argue that the linguistic meaning of an utterance fully specifies what is said in virtue of syntax coding for the utterance's relation to the speech-event taking place (Sigurðsson 2004b; 2007). Through these features we need not rely on minimal propositions, as in literalism, or free contextual enrichment, as in contextualism, to create what is said, but instead on grammar (Hinzen *forthcoming*). We will conclude with a summary of the GT, which we will then invoke in accounting for the three ambiguity problems in §6.

5.1

LANGUAGE AS A NATURAL OBJECT

The ability to use language is unique to our species. It is part of our biological endowment, a 'direct gift of nature' (Chomsky 2000, 81). It allows us open ended creativity, the ability to create and understand novel utterances together with only physical limits on the length of such utterances (2000, 3). Language affords us the ability to think in

propositional terms, to create utterances whose content is either true or false. It also allows thought and speech that is radically stimulus free. This point divides into two further ones: first of all we can speak of objects and events in the past and future, without having any relevant stimuli present; and secondly language affords us concepts, and accordingly thoughts and utterances, about things that can never be directly dependent upon stimuli (1966, 59-60). It is these aspects of human language that separate it from mere communication as exhibited in the animal kingdom.[121] One conclusion that can be drawn from all of this is that at least some aspects of grammar and semantics are unique to human language.[122] Language "varies little among humans and without significant analogue elsewhere" and "[i]t is largely responsible for the fact that alone in the biological world, humans have a history, cultural evolution, and diversity of any complexity and richness, even in the technical sense that their numbers are huge" (2000, 3). It is therefore, arguably, responsible for the majority of the distinctions that exist between humans and the rest of the animal world.

Chomsky outlines three factors to be investigated in the development of any adequate linguistic theory. Critically, these three factors are understood to be employed in the investigation of any biological faculty:

> 1. Genetic endowment, apparently nearly uniform for the species, which interprets part of the environment as linguistic experience, a nontrivial task that the infant carries out reflexively, and which determines the general course of the development of the language faculty.
>
> 2. Experience, which leads to variation, within a fairly narrow range, as in the case of other subsystems of the human capacity and the organism generally.
>
> 3. Principles not specific to the faculty of language. (2005, 6)

In summation, the first factor is associated with what is termed 'Universal Grammar' (UG) and is taken to be a species trait, the second factor is

[121] For instance, this is what separates it from birdsong (Gentner et al. 2006; Berwick et al. 2011), the dances of bees (Gallistel 2009), the pyow-hack noises of Putty-nosed monkeys (Arnold and Zuberbühler 2008), and the putative syntax of Campbell's monkeys (Ouattara et al. 2009).

[122] It should be noted that some aspects of physiology relevant to the production of human language are also unique (Lieberman 1968; 2003).

linguistic stimuli that triggers and interacts with UG, and the third factor concerns the extent to which laws on nature more generally help shape FL. A linguistic theory is evaluated in accordance with its ability to account for all three factors.

According to Chomsky, a linguistic theory can be judged through three levels of adequacy. The first is termed 'descriptive adequacy', a linguistic theory satisfies descriptive adequacy "insofar as it gives a full and accurate account of the properties of the language, of what the speaker of the language knows" (2000, 7). The second is termed 'explanatory adequacy', a linguistic theory satisfies explanatory adequacy if it shows "how each particular language can be derived from a uniform initial state under the 'boundary conditions' set by experience" (2000, 7).[123] An explanatorily adequate theory of language must be able to predict what sentences are possible in a given language and what languages are possible given the underlying universal laws governing FL (Chomsky 1965, 30). Explanatory adequacy moves beyond particular languages to search for universal laws governing grammar, semantics, and phonetics, which underpin the species specific trait of language (1966, 94). The third, and strongest form, of adequacy is termed 'principled explanation', a linguistic theory achieves principled explanation if it can provide an account of natural language that situates it within general properties of organic systems (2004, 106; 2005, 2). Establishing what aspects of natural language are explained by systems not unique to language is central to principled explanation, such systems are termed 'third factor' aspects of language design (2005, 6). For Chomsky, a 'genuine theory of human language' must satisfy both descriptive and explanatory adequacy at least. Finally, a successful linguistic theory will be able to account for two problems that face all species traits: the first is concerns how the trait develops through maturation in the individual, and the second is that of how the trait evolved in the species in the first place.

Language acquisition concerns how a speaker comes to be competent in using a language. An explanation of acquisition requires solutions to the following two questions: what initial state was required as part of the speaker's biological endowment? And, what processes, biological or

[123] The term 'boundary conditions' is meant to capture the idea that during the acquisition of a language the child is exposed to limited and fragmentary data concerning the language she is learning and yet without conscious effect learns it.

cultural, must the speaker have gone through in order to acquire this competence? For Chomsky, the answer to the first question is that the initial state or biological endowment shared by every individual across the species is UG (2000, 4; 2000 78). UG is the "general features of grammatical structure [that] are common to all language and reflect certain fundamental properties of the mind" (1966, 98). The answer to the second question is that humans possess a 'language acquisition device' that, when provided with a suitable level of stimuli, develops language in the individual with the end point being linguistic competence in a language. In Chomsky's words, "[t]he environment triggers and to a limited extent shapes an internally-directed process of growth" (2000, 78). UG and acquisition interact in such a way as to provide principles and parameters in language learning, "language universals that set limits to the variety of human language" (2000, 98). Distinct languages are thus captured by parametric variation (2000, 8; Newmeyer 2005). The linguistic stimuli that an individual speaker encounters value these parameters to produce, for instance, the learning of English. Importantly, there is no conscious effect on the part of the child, and acquisition is largely unreflective, "the speaker of a language knows a great deal that he has not learned" (1966, 98). Language acquisition is therefore an organic process.

Language evolution concerns a species trait and involves giving an explanation of the genesis of our linguistic abilities, our linguistic biological endowment. This problem has been labelled by some as one of the hardest problems in science (Christiansen & Kirby 2003). In virtue of this the subject remains in its infancy, although a number of volumes dedicated to the topic have emerged in recent years.[124] If we are to understand language as a biological endowment, containing UG and a language acquisition device, then we need an account of how and when it emerged as part of our species' phenotype. The varying theories cut through different approaches to language, with generative grammarians such as Chomsky giving a different story to, for example, computational linguists. For instance, some argue that language evolution began at the very beginning of the hominid ancestry some 7myr ago through stages of proto-language

[124] See for instance Jackendoff (2003), Christiansen & Kirby (2003), Piatelli-Palmarini, Juan Uriagereka, and Salaburu (2009), Fitch (2010), Larson, Déprez, and Yamakido (2010), Di Sciullo & Boeckx (2011), Hurford (2011), Tallerman & Gibson (2012), and Bolhuis & Everaert (2013).

(Tallerman 2007), others that it emerged as an adaptive reaction to changing surroundings (Pinker 2003), and finally many Chomskyans argue that it emerged almost instantaneously as an instance of punctuated equilibrium consisting of an exaptation of a pre-existing trait to serve a new function (Gould and Lewontin 1979; Hauser *et al.* 2002; Tattersall 2004). The last view is held most widely by generative grammarians who place the recursive aspect of language, captured by its open-ended creativity, as the central facet of linguistic evolution. For such authors, the evolution of a cognitive ability to manipulate recursive structure is what evolved, and its interaction with sound and meaning is incidental, although central, to language. Further positions exist that suggest that recursion alone is not enough to account for language evolution and instead suggest that we need, at least, an account of the process of lexicalisation, an account of how we get the building blocks that act as input to the recursive device in the first place (Hughes & Miller 2014). Whatever option one chooses, the evolutionary and developmental aspects of language are central to any explanatory linguistic theory, and place such theories in line with other naturalistic enterprises in biology, in particular the Evo-Devo program found in biology (Carroll 2005; Hauser 2009).

In virtue of what we have discussed so far it is reasonable to understand the methodology of linguistics to be tied to the sciences of mind and biology more generally. This view – that language is a natural object and capable of naturalistic investigation - has led some to term this approach to language *biolinguistics* (Jenkins 1999). Clearly, language is part of our mental world, it is a mental phenomenon. However, as Chomsky notes it is important to understand the word 'mental' here as "on a par with 'chemical', 'optical', or 'electrical'" (2000, 106). The term should imply no metaphysical commitment to, for instance, substance dualism. Language should therefore be studied in much the same way as any phenomenon found in the natural world. It is a form of methodological naturalism. In virtue of these claims, we can understand the study of natural language semantics, and by extension definite descriptions, as being a naturalistic study, and hold it to the same standards of rigor that we would any other natural object. In this vein, we can understand the three ambiguity problems outlined in §1.1 as scientific problems, which should be understood as amenable to naturalistic study.

5.11

GENERATIVE GRAMMAR

The linguistic theory that we are describing is one found within the enterprise of generative grammar. Generative grammar posits the existence of FL, which is unique to humans. FL constitutes a faculty of mind and should be understood in a similar fashion to other cognitive faculties such as vision. FL interacts with a wider group of cognitive abilities that humans exhibit to provide a complete theory of language (2000, 168). Central to generative grammar is the claim that FL is internal to the biological make-up of humans and it thereby constitutes what we might term internalist study. Accordingly, Chomsky believes that "linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behaviour" (1965, 4).

Generative grammar emerged in opposition to behaviourism, which, at the time, held a dominant position in both psychology and the philosophy of mind and language (Chomsky 1959). Behaviourism defended the view that grammar could be learnt purely through general learning mechanisms that an individual has for analysing experience. The mechanisms themselves were not grounded in any specific linguistic endowment. Language acquisition, for instance, is explained through the child observing and imitating the behaviour of fully competent linguistic individuals it comes across. This is where the theory becomes questionable. For, how can a child infer the complex system of grammar with its myriad intricacies? How can a child infer the system of binding, varieties of movement, case assignment, and so on, simply through a general learning mechanism? The insurmountable difficulties involved in a behavioural theory of grammar inspired Chomsky's work from the very beginning:

> [t]here is surely no reason today for taking seriously a position that attributes a complex human achievement entirely to months (or at most years) of experience, rather than to millions of years of evolution or to principles of neural organization that may be even more deeply grounded in physical law. (1965, 59)

The problem Chomsky had with behaviourism was that it did not suppose any particular innate linguistic endowment. Behaviourism therefore lacked the capacity to explain the speed at which children learn language, and the

fact that they have access to only a limited set of stimuli yet still manage to acquire language without clear and explicit instruction.

The core thesis of generative grammar is that individuals are biologically endowed with UG and a language acquisition device. The generative aspect of the program concerns the fact that we can use a finite set of elements to create an infinite set of novel utterances. To capture this Chomsky proposed that we can model language through hierarchical tree structures.[125] Hierarchical structure is built up through a derivational process involving grammatical phrases: NPs, VPs, and so on. A phrase is understood to be constituted by a head (which is associated with a particular grammatical category), a complement (which is the grammatical phrase it is directly above in the hierarchy), and a specifier, which facilitates various operations that we will detail later on (including movement). These three aspects of a phrase, its head, complement, and specifier, are universally present across all syntactic projections. The tripartite distinction within a grammatical phrase is now understood under the rubric of X-bar theory (Boeckx 2008, 129).[126] Through hierarchical structure grammatical relations are formed. The range of possible grammars available to the species are captured within the grammatical hierarchy and the relations it instantiates between phrases. To understand all of this more clearly, and to provide a solid foundation for our grammatical theory of semantics, we must now look at FL in more detail. We will do this through the latest incarnation of generative grammar in the Minimalist Program (or minimalism for short).

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[125] The hierarchical model of language should be contrasted with the perceived linear order of utterances. The fact that linguistic utterances follow a linear order is therefore likely a physiological constraint. In virtue of grammatical structure being hierarchical but speech physiology being linear there needs to be a mechanism to convert the former into the latter. Typically, such a mechanism is based on a linear correspondence axiom (see Kayne 1994; Uriagereka 1999, 252; 2012, 49).

[126] X-bar theory is a theory concerning the levels of projection exhibited by a phrase head. The X stands for the grammatical category that acts as the phrase head, and the theory claims that every phrase head projects from a minimal position through to a maximal position that acts as the label of the overall phrase. It is through this idea that we can state that the phrase head, as opposed to the phrase complement or specifier, is what acts as the label and is visible to further syntactic computations. The X-bar schema is meant to be a theory concerning the topology of phrases in general and can therefore be understood as part of what is posited in UG (Boeckx 2008, 13-14).

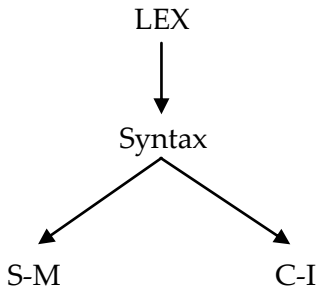
5.2

THE FACULTY OF LANGUAGE

FL is taken to be the natural object that is investigated in linguistic theory. Generative grammar, as an overarching methodology, can be instantiated in various ways, and FL can be differently designed depending upon which version of generative grammar one adopts. Minimalism provides the latest incarnation of FL within the Chomskyan enterprise (1995; 2000; 2001; 2004; 2005; 2007; 2008; Uriagereka 1998, 2012). In what follows we will outline FL and its various components as understood in minimalism. This will involve looking at the lexicon and the main systems that interface with syntax. Furthermore, we will outline the operations present at the heart of syntax, namely Merge, Agree, Transfer, and the system's derivational dynamics as found in syntactic cycles or phases.

Minimalism states that FL is composed of at least four parts; a lexicon (LEX) that constitutes the individuals 'mental dictionary', the syntactic component of language, and two interfaces labelled a sensory-motor interface (S-M) and a conceptual-intentional interface (C-I). We can understand the following diagram as capturing FL:

(1)



The input to the syntactic component is LEX, which provides a lexical array, or numeration, of lexical items that form the words employed in the generation of a syntactic object (Chomsky 1995, 225). Following this a "purely syntactic object" is produced, which has as 'end-points' the two interfaces (Uriagereka 2009, 1). The resultant structure is then transferred to the interfaces to receive a phonetic and semantic assignment, let us call this operation 'Transfer'. In virtue of having to satisfy the interfaces, syntactic objects that are available to Transfer are said to have met 'legibility requirements' set by those interfaces (Chomsky 2000, 94) in conjunction

with meeting the requirement of full interpretation, which is the principle that there should be no superfluous elements in the syntactic representation (1995, 27; 130). The legibility requirements, which act as the name suggests, force certain criteria to be met by the syntactic component that make the syntactic object readable to the two interfaces, let us call this process 'Agree'. This is what Chomsky means when he says that language is the link between sound and meaning, which is constituted by syntax (2005, 10). We will now briefly outline each node on the above illustration of FL in turn, beginning with LEX and the two interfaces before moving on to look at the syntactic component that holds FL together.

5.21

THE LEXICON

As already stated, LEX constitutes the speakers mental dictionary or a device through which we access our "conceptual repertoire" (Boeckx 2008, 74). According to Chomsky, LEX contains items that are bundles of features (Chomsky 2008, 135). A given lexical item ϑ therefore is a set of features that include phonological, semantic, and formal properties of the word. The set of features that ϑ has will be a subset of the set of all possible features [F]. Let us define a feature as follows:

(2) FEATURE

> A feature [f] is a "primitive, minimal unit of linguistic organization" and is a property of a lexical item (Uriagereka 1998, 598; Chomsky 2008, 139). For any given language, "FL specifies a set of features available" from a "universal repertoire" of features [F]. Hence, for any given feature [f], [f] is drawn from [F] (Gallego 2010).

We can state of a word such as *apple* that it may contain the following feature matrix (Chomsky 1995, 238):[127]

(3)

Phonological:	[æpəl]
Semantic:	[+ edible], [+ fruit], [+ spherical]
Formal:	[+ noun], [+ singular]

[127] Following convention we will place features inside square brackets with the + and – acting as indictors of whether or not something bears the property that [f] stands for (Chomsky 1995, 230-231; Adger 2010; Adger & Svenonius 2011).

Of the three types of feature, only the formal features are visible to the syntactic component. The sorts of feature that may be labelled formal include syntactic categories (N, V, A, etc.), φ-features (person, number, gender), case (nominative, accusative, etc.), and possibly theta assignment (agent, patient, theme, etc.).[128] Additionally, features are split into two categories: interpretable and uninterpretable (we can represent the former by [f] and the latter [uF]). If a feature is interpretable, then it has a value, whereas if it is uninterpretable, then it does not. For instance, a set of interpretable φ-features might be {[3rd person], [singular], [masculine]}, whereas a set of uninterpretable φ-features will have one or more feature unvalued {[+/- person], [+/- number], [masculine]}. During the course of a derivation syntax must rid the object it is producing of any uninterpretable features in order to meet legibility requirements. We will see how this is done in §5.25. Once lexical items have been used in the course of a syntactic derivation and transferred to the interfaces, the valued features can be called upon to assign to the syntactic object transferred a phonetic and semantic assignment. As Boeckx notes, the Chomskyan picture of LEX is one whereby it is "an idiosyncratic, to a large extent, arbitrary linking of sound and meaning" (2008, 74; Chomsky 1995, 236-241).

In contrast to Chomsky, others take there to be a distinction between a narrow lexicon and a broad lexicon, where the latter contains information about usage and pronunciation, and the former contains a very minimal amount of information perhaps limited to an unvalued feature that allows it to be selected for a place in the syntactic derivation.[129] Under such a view, the word *apple* does not contain a formal categorical feature, for instance N, but is instead a 'category-neutral root' (written √apple) that is provided with a category only through the syntactic context in which it is placed in the derivation (Marantz 2000; 2006; Boeckx 2008; 77). In other words, the material held in the lexicon by a √root does not contain formal features. It only contains phonological/semantic features. In what follows we will adopt this view, whereby lexical items such as *apple* are treated as category-

[128] Theta-assignment is the process through which an argument contained in a clause comes to bear a thematic-role.

[129] The narrow/broad distinction is from Distributed Morphology. The feature that enables selection is labelled an edge feature (EF), "[f]or an LI [lexical item] to be able to enter into a computation, merging with some SO [syntactic object], it must have some property permitting this operation. A property of an LI is called a feature, so an LI has a feature that permits it to be merged. Call this the edge-feature (EF) of the LI (2008, 139).

neutral roots that receive a syntactic category through the syntactic context/configuration that they are placed in.

There is an important point to be made here between the types of words that act as category-neutral roots and those that do not. There is a distinction in generative grammar between what are traditionally labelled lexical categories and functional categories, which together combine to create a syntactic derivation.[130] Lexical categories are syntactic projections that contain lexical roots, which are also termed 'open-class' items in virtue of being category-neutral as part of LEX (Boeckx 2008, 77). If a lexical item is open-class, then this means its syntactic category is determined in virtue of the syntactic context it is placed within, syntactic projections that are considered lexical categories include noun (N), verb (V), adjective (A), adverb (ADV), and preposition/postposition (P) (Chomsky 1986, 2; Radford 2004; 40). Lexical items capable of being placed in such categories are roots, or what we have previously termed descriptive words. Conversely, another group of words termed 'closed-class' items exist, which correspond to functional categories and, supposedly, carry their syntactic category with them as a feature. We have labelled these functional or grammatical words, and they can be contrasted with the former in virtue of carrying seemingly small amounts of descriptive content. For example, the word *the* is a functional item whereas *apple* is a lexical item. The former has the category feature of being a determiner (D), whereas the latter is category-neutral. The two are both lexical items yet are distinct. Syntactic categories that are considered functional categories include complementizer (C), tense (T), light verb (*v*), determiner (D), little n (*n*) (Radford 2004, 454; Boeckx 2008, 77).[131] Lexical items that are placed in such categories are functional. The functional categories determine the lexical category that a lexical root subsumes and they also provide the appropriate relations between

[130] The distinction at play here once again has a precursor in the work of medieval logicians and grammarians, who made a distinction between categorematic and syncategorematic words that roughly tracks that made between lexical and functional categories respectively (see de Rijk 1982; Spade 1982).

[131] Radford defines a light verb as a verb "with relatively little semantic content" such as *make* in *make fun of*, "[h]owever in recent work… this term is extended to denote an abstract affixal verb (often with a causative sense like that of *make*) to which a noun, adjective or verb adjoins. For instance, it might be claimed that the suffix *–en* in a verb like *sadden* is an affixal light verb which combines with an adjective like *sad* to form the causative verb *sadden*" (2004, 461). The light verb analysis is further extended such that all transitive verbs are raised from V into *v**.

syntactic categories. As Radford notes, words that fall within functional categories "serve primarily to carry information about the grammatical function of particular types of expression within the sentence" (2004, 40), and as Boeckx states, they "enter into checking relations" (2008, 77). The functional categories therefore serve to organise and value the categorical features of the lexical roots, thus ensuring that the syntactic object created meets legibility requirements demanded by the interfaces. This is the concept of feature-checking, which we will discuss in §5.25 below.

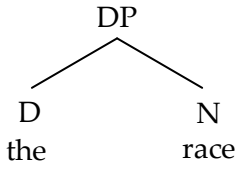
In order to understand how the interaction between functional categories and lexical categories work it is useful to consider an example. Take for instance the word *race* as used in the two sentences below:

(4) Ronaldo won the race.

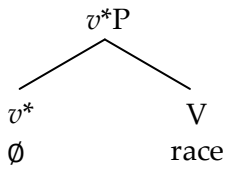
(5) Ronaldo is racing for the ball.

In (4) the lexical root becomes categorized as N in virtue of being placed in a position headed by the functional category D, whereas in (5) it is categorized as V in virtue of being placed in a position headed by the functional category *v**. The root √race can be placed into the following two syntactic structures:

(4*)



(5*)



In (4*) the root is added to a projection (the hierarchical structure indicated through the tree format and nodes) headed by the functional element D (the element that projects to the phrase level indicated by P) and thereby exhibits a nominal category N. In (5*) however, the root is added to a projection headed by the functional element *v** and thereby exhibits a verbal category V (Marantz 2000, 27; Boeckx 2008, 77). The functional categories D and *v* then link up with the lexical categories N and V and

transmit information that values them with the appropriate formal features. This is a system termed Agree, whereby the categorical features that N and V exhibited are inherited from D and *v* respectively. Therefore, a distinction exists between open-class lexical items, or roots, that are category neutral and placed in lexical categories, and those that correspond to closed-class items, that are of a fixed category and subsequently carry a particular formal feature that organises the syntactic objects they create.

5.22

THE S-M INTERFACE

The Sensory-Motor interface (S-M) is one of two interfaces that act as the 'end-points' of a syntactic derivation. S-M deals with everything from pure physiological vocalisation to more nuanced facets of phonology including intonation and prosodic stress. The most interesting facet of the S-M interface is that it can only work with a linear structure/order, as opposed to a hierarchical structure. Syntax, on the other hand, is hierarchical, as Boeckx notes, "syntactic objects are at least two-dimensional: there is a horizontal dimension defined by combining α and β, and the vertical dimension defined by projection" (2008, 66). To clarify, the horizontal dimension is determined by the idea that two elements may combine, and the vertical dimension is determined by the fact that one of those elements will project, or label, the resultant structure. For instance, if one merges N and D, the resultant structure will be labelled a DP in virtue of D projecting to label the overall structure. Linear structure is demanded by physiological limitations. In virtue of this, the S-M interface demands a linear order that is systematically derived from the hierarchical structure that syntax provides.[132] Following Kayne, it is now assumed that a process of linearization takes place that makes the syntactic hierarchy useable, translating it into the linear order that we perceive in language use (Kayne 1994, 3; Uriagereka 1998, 222; 2012, 49). Critically, this linearization process is highly systematic and should be understood to be a linguistic universal. Finally, the syntactic object must hit legibility requirements forced on it by S-M. In reaching these requirements the syntactic object becomes capable of

[132] Hierarchical structure can be understood as over determining possible linear structures. A process of linearization is then needed to systematically provide one linear order that becomes the one used by S-M (see Uriagereka 1999, 253 for discussion).

being assigned a phonetic realisation and makes use of the phonological features carried in by the relevant lexical items.

5.23

THE C-I INTERFACE

For philosophers the Conceptual-Intentional interface (C-I) is by far the most interesting as it deals with the interaction between syntax and semantics. The central question concerning the interaction of syntax and C-I involves looking at just how much machinery we need to posit as being part of C-I, or as Uriagereka puts it 'how much of semantics does syntax carve out?' As already mentioned, we can understand lexical items as carrying features, either inherently or through receiving them in the course of a syntactic derivation, and a selection of these features will be semantic. Take for instance the word *apple*. Attached to this word, although dormant with respect to syntactic operations, will be semantic features potentially including [+ edible], [+ fruit], and other such properties traditionally associated with the word in English. Once the word has been through the appropriate syntactic operations it will be part of the material transferred to the C-I interface. At this point the semantic features that we have stipulated to be attached to *apple* will become interpreted and part of the idiosyncratic information read off the word. We can understand this as being part of the lexical semantics of the word, which, with respect to the features listed, is largely unaffected by the syntactic component.

There are however more important issues surrounding the interaction of C-I with syntax, one of which concerns those features that are operative in a syntactic derivation. First of all, a lexical item such as *apple* will, once inserted in the syntactic derivation, take on a bundle of grammatical features including [φ-features] and a [case] feature. Traditionally understood, the [case] feature will be unvalued, hence uninterpretable, and the [φ-features] will be valued, hence interpretable. For instance, upon being merged to a D element, such as the indefinite article *an*, the root √apple will contain the φ-feature bundle {[3rd person inanimate], [singular]}. Whilst such features are considered grammatical they are interpreted at the C-I interface and hence have semantic effects. As a result of this, we can state that syntactic structure has semantic effects upon at least person, number, and, in some languages, gender. Further to this, there is another

aspect of syntactic structure that will clearly effect the C-I assignment, which concerns syntactic categories. As we have stated, a root such as √apple receives its nominal reading in virtue of being merged with an appropriate item that is of the syntactic category D. In virtue of this, it is syntax, and not the lexicon, that determines the fact that the item is nominal. We can see this illustrated with respect to the root √race in (4*) and (5*) above. Once again, syntax appears to structure and inform the semantic assignment.

It is part of legibility requirements demanded by C-I that φ and case features are checked and valued. Once all features are checked, and C-I's demands are met, the syntactic object created can be transferred to the interface for a semantic assignment. This is how the interaction between the syntactic component and C-I works. There are multiple theories on what then happens in C-I but there is no clear consensus. It is useful now to recall what we said in §2.2 about logical form. Many theorists believe that something akin to the logical form is present as a component of C-I and thereby assigns to the transferred syntactic object an appropriate logical form. However, as Hinzen correctly points out "[w]e can *formalize* semantics, to be sure. Yet, this won't tell us why it exists or why it does what it does" (2008, 348). We need an account of why certain grammatical configurations produce certain pieces of logical form, and the regularity and consistency with which they do. Accordingly, Hinzen believes that rather than simply expressing thought, syntax is thought's skeleton and is thereby strongly productive in the assembly of compositional linguistic meaning, syntax is "what literally *constructs* a thought and gives it a shape, much as our bones give shape and structure to our body" (2009b, 128). The operations in syntax actually explain many of the operations we see posited in formal semantics, including, for instance, operations understood to produce instances of concatenation. It therefore seems unnecessary to duplicate such operations in C-I without an explanation of why language adheres to such redundancy. We will further this idea below in §5.3.

5.24

THE SYNTACTIC COMPONENT

We have outlined LEX and the objects it produces, which act as the input to the syntactic component. In addition, we have outlined the two interfaces

that act as the 'end-points' for the syntactic component. It now remains to give an account of what constitutes the syntactic component, which acts as the link between the interfaces. The first thing we can say about the syntactic component is that it is generative, it generates syntactic structures. We can say that syntax is computational and combinatorial. Chomsky takes the operation at the heart of the syntactic component to be a symmetrical and unrestricted binary operation that he terms 'Merge' (2004, 117; Boeckx 2008, 79). Merge is taken to be a simple set building operation whereby two elements that act as inputs to the system (lexical items) are put together into a set. To begin with, a lexical array is built from lexical items, which is an unordered set that has elements capable of taking part in the Merge procedure as part of the syntactic component. Next, taking two items from the lexical array α and β, through Merge we can create the set $\{\alpha, \beta\}$. Following this, we can apply a further iteration of Merge to create the set $\{\gamma, \{\alpha, \beta\}\}$, and so on, to create the open-ended generative structures of language. Consider deriving (4*), in this case the two elements D and N are merged together to create a set {D, N}. In virtue of being symmetric the set {D, N} is no different to that of {N, D}. In other words, Merge is just a basic system of concatenation that is, in principle, no different to any symmetric set building operation.

However, as Boeckx notes there is something special about syntactic structure that sets it apart from other recursive systems, namely that it is endocentric, "there is one thing quite clear about Merge and language: once you combine two units, X and Y, the output is not some new element Z, but either X or Y. So the hierarchical structure that we get in language is a very specific sort, namely it gives rise to so-called endocentric structures" (2009, 47). In (4*), the hierarchical structure is labelled as DP. D projects to label the structure. The labelling aspect of syntax gives rise to hierarchy. In other words, after forming the set {D, N} from an initial lexical array, another instance of Merge occurs that acts as a copying mechanism that copies the head of the expression D and produces the set {D, {D, N}}. The set {D, {D, N}} can then be understood to indicate that D is the label and hence maximally projected element of the structure (2009, 48). Irrespective of how one accounts for labels it is central to the structures we see in the syntactic component, and it is instructive to how we consider the syntactic objects created through Merge. The label of a projection is what is observable to

further instances of Merge, hence, for the set {D, {D, N}} the syntactic component views it as being a syntactic object of type D not of type N.

Minimalism has another facet to it that distinguishes it from previous forms of generative grammar. It claims that not only is syntax a link between sound and meaning, but it is an optimal solution to conditions imposed by these interfaces, "language is an optimal solution to interface conditions that FL must satisfy; that is, language is an optimal way to link sound and meaning, where these notions are given a technical sense in terms of the interface systems that enter into the use and interpretation of expressions" (Chomsky 2008, 135; 1995; 171; Zeijlstra 2009). Merge is taken to be the most simple generative operation available, "[u]nbounded Merge or some equivalent is unavoidable in a system of hierarchic discrete infinity, so we can assume that it 'comes free'" (2008, 137).

The syntactic component of language does not just Merge lexical items but sometimes moves elements that have already been merged into positions further up the structure. Consider the following sentence:

(6) [Which team] does Ronaldo play for [~~which team~~]?

The question in (6) is derived originally as *Ronaldo plays for which team?* However, in virtue of what is traditionally termed *wh*-movement the question marking element is moved to the beginning of the sentence. This instance of *wh*-movement is just one instance where expressions move, in actual fact movement is widespread in language.[133] Chomsky claims that movement is easily explained using the concept of Merge. As described above, Merge takes two elements and forms a set from them. The first form of Merge is termed External Merge as the two elements to be merged are from a source external to the syntactic component, namely a lexical array. However, Merge places no constraint on whether the input to it comes from an external source such as a lexical array, or an internal source such as the elements already merged. For example, once the set {α, β} is formed through an initial instance of External Merge the operation can apply to an

[133] There exists argument movement, non-argument movement (which includes *wh*-movement and pied-piping), head movement, clitic raising, quantifier raising, and various other forms.

item internal to this set to produce the set {α, {α, β}} or the set {β, {α, β}}. This form of Merge is termed Internal Merge. Internal Merge produces a copy of the element being merged and hence we get an account of sentences that employ movement such as (6).

Importantly, this dual account of Merge, external and internal, is taken to be the simplest account. According to Chomsky, to deny that Merge is source-neutral would require empirical evidence. Hence, the dual function of Merge is the null hypothesis (2008, 140). The impact of the two forms of Merge is clear for the S-M interface but interestingly the two forms are said to have distinct effects on the C-I interface also. External Merge corresponds to thematic structure and internal Merge to discourse related properties of language (2008, 140). We will address this claim in §5.3.

5.25

PHASES

So far we have outlined all four aspects of FL as understood by Minimalism. It is now time to look at the derivational dynamics of syntax, which explain how the individual systems interact together to become a unified functioning system. We have outlined some of the derivational dynamics already, namely that there is an operation called External Merge that takes items from a pre-formed lexical array and puts them together. Additionally, there is a process that may be termed labelling that takes two items α and β that have been merged together and labels that structure with either α or β thus forming a hierarchical projection. However, there is more to the syntactic system than these procedures. There is an Agree operation, which creates a feature-checking relation between elements in the derivation, there are instances of movement, or Internal Merge, where an element is raised up the derivational structure, and there is the operation of Transfer wherein the syntactic object created is sent to the interfaces. One problem that arises with these operations is that of when such operations are activated, how this activation is explained, and why it exists at all. The answer provided by minimalism is that syntactic derivations operate cyclically in what are now termed 'phases', and that phase boundaries activate the operations of Agree, Internal Merge, and finally, Transfer.

The idea behind phase based syntax is that derivations proceed in what we may term 'incremental chunks' (Boeckx & Grohmann 2007, 205) or 'successive derivational cascades' (Uriagereka 1999, 255). In other words, a sentence is not derived by the syntactic component all-in-one go but is instead subject to smaller bit-by-bit derivations, which at certain points terminate and trigger the three operations mentioned above: Agree, Internal Merge, and Transfer. The idea of syntax working in cycles is not new to minimalism. Predecessors to phases can be seen in bounding nodes, developed in the Extended Standard Theory (EST) (Chomsky 1975), and barriers, developed in Government and Binding Theory (GB) (Chomsky 1986). However, phases in minimalism are developed in line with the core tenets of the SMT, the claim that language is an optimal solution to interface conditions.

Typically in minimalism, phases are argued for on the basis of computational efficiency (third factor design constraints). Recalling that the syntactic component is meant to be an optimal solution to interface conditions, the argument for computational efficiency in syntax is based around the idea that it should not be burdened with redundant information. In virtue of this, Chomsky states that the computational load of the syntactic component should be limited to a single cycle of derivational procedure. In other words, it should be limited to one feature-checking procedure of Agree, one instance of movement, and one instance of Transfer.[134] Therefore, once enough syntactic structure has been built to trigger these operations they happen immediately. These operations are opportunistic, they happen at the first available opportunity, and after one cycle or phase has been completed, and the syntactic object has been transferred to the interfaces (together with information concerning Agree and any elements that may have moved), it is frozen. The syntactic component no longer needs to carry information concerning the phase's internal structure and is required only to view the label that it projects, for the purposes of syntax the phase acts as a unitary syntactic block. Thus, computational load is restricted and the next phase continues as a single cycle (2008, 142-143).

[134] As Chomsky notes, it is reasonable to suppose that Transfer to both interfaces happens simultaneously (2008, 142-143).

A further facet to phase theory is the possibility that the lexical array that acts as input to the syntactic component is split in such a way that only a subset of the array is present in active memory and that subpart corresponds to the items used in the phase being derived (Boeckx & Grohmann 2007, 205; Gallego 2010, 54; Richards 2011, 76). The lexical array active in memory thereby contains all and only the elements to be used in that phase being derived. Once again, this idea is meant to capture the efficiency of linguistic computation.

It is now time to consider what counts as a phase. Traditionally in minimalism at least two syntactic categories are taken to constitute phases: C and *v**.[135] The reason for these two categories being selected is that they contain valued case features, which trigger Agree, Internal Merge, and finally Transfer. Thus, as a derivation is computed it proceeds one phase at a time, beginning with the *v** phase. Once the *v** level, that is, the phase level, has been reached the agreement features on *v** trigger the operation Agree, which looks down the derivation to find unvalued case feature and values it. It does this until it finds an element with no unvalued features and then it stops (2008, 142). Following this, any possible iterations of Internal Merge occur, because otherwise the item would be frozen and unable to move, and finally Transfer applies and the syntactic object created from the finished derivational cycle is transferred to the interfaces.

To make this derivational system clear let us consider an example, where we will derive a basic structure for *v**. According to Chomsky, we start with a lexical sub-array that contains all the items that will be merged into the syntactic component together with their edge features (EFs), indicated by subscript indices, (7) is such an array:[136]

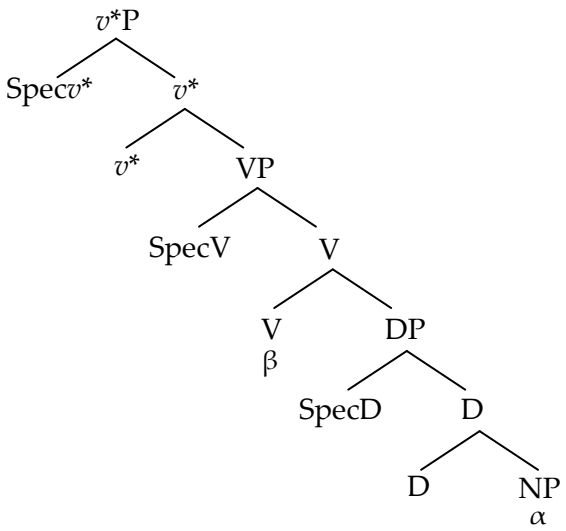
(7) $\{v^*_1, D_1, \sqrt{\alpha_1}, \sqrt{\beta_1}\}$

[135] The category syntactic category C stands for a complementizer. It contains 'clause-introducing' words such as *that* in *I know that you are tired*, but it also contains any pre-clausal elements such as the adverb *surprisingly* in *surprisingly John is on time* (Radford 2004, 442). Furthermore, *v** stands for a functional category containing "full argument structure, transitive and experiencer constructions, and is one of several choices for *v*" (Chomsky 2008, 143). We will argue shortly that D is also a phase (Svenonius 2004; Hinzen 2007).

[136] According to Chomsky an EF is a feature that enables a lexical item to be merged into a syntactic derivation in the first place. Once a lexical item has been merged its EF is deleted (2008, 139).

Following this we derive, through numerous iterations of External Merge, the syntactic derivation in (8), where the lexical roots √α and √β have been merged with the appropriate functional categories to render them N and V respectively and where each phrase has reached its maximal projection:[137]

(8)



At this point all of the elements in the lexical array have been used and the EFs of each deleted. It is now time for the various phase level operations to take place.

The next step involves *v** triggering the process of Agree, which is a feature checking operation. Agree works by linking the phase head to its complement (domain) and creating what is termed a probe-goal relationship. The probe-goal relationship is produced through feature-matching, which can be defined as follows, if α and β match for some feature [f], then either α and β share the same value for [f] or one is unvalued (Radford 2004, 287).[138] Each item in the tree has a feature matrix that may contain both interpretable and uninterpretable features. Once a probe has matched with a goal (or multiple goals) the two share feature valuations and any uninterpretable features are deleted, which triggers the Transfer operation.[139]

[137] For any given head, the phrase of which it is the head of will include a specifier, the head, and the head's complement.

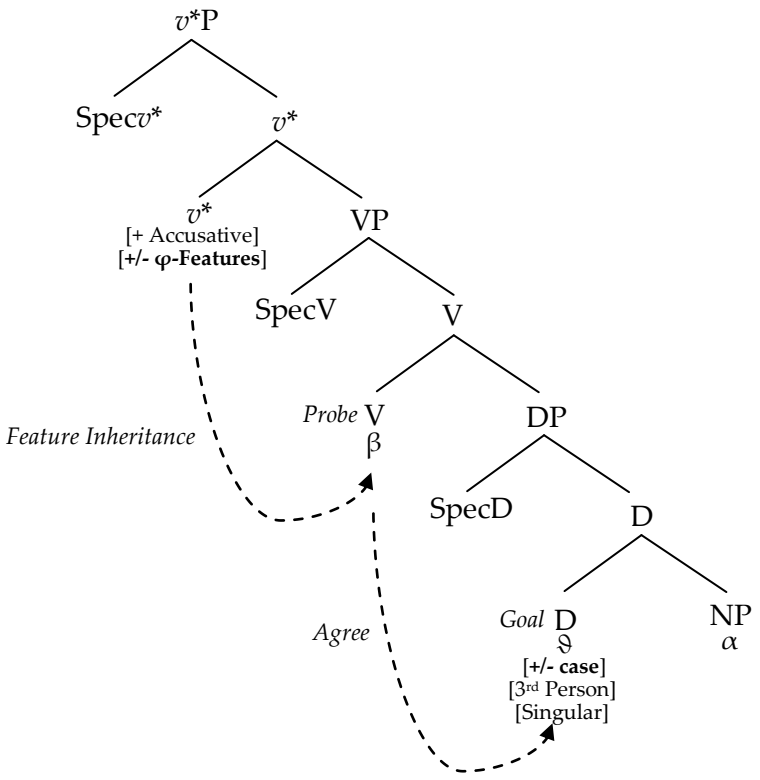
[138] With respect to efficiency, "[f]or minimal computation, the probe should search the smallest domain to find the goal: its c-command domain" (Chomsky 2008, 146).

[139] According to Chomsky, a probe can Agree with multiple goals thereby creating an instance of Multiple Agree (Chomsky 2008, 142; see also Hiraiwa 2002).

According to Gallego, it is the uninterpretable features that mark phase boundaries. [140] Typically understood, nominal constructions have an uninterpretable case feature, which must be dealt with before Transfer (2010, xi), whereas *v** has a valued case feature that is capable of agreeing with the uninterpretable feature in the nominal through the probe-goal relationship. In virtue of this, the uninterpretable feature can be deleted. Accordingly, upon striking a probe-goal relationship successfully the uninterpretable feature of the goal is deleted and any other features on either the probe or goal share valuations. For instance, the probe may lack feature valuations for φ-features and hence receive a valuation for these features from the goal. In virtue of this, we might say that the probe-goal relationship is mutually beneficial.

We can illustrate the probe goal relationship with the diagram in (9):

(9)



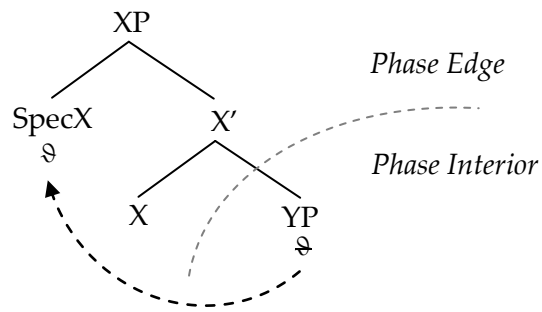
The lexical array in (7) will act as the input for the syntactic derivation and at the point of D an uninterpretable feature, [+/- case], is inserted as part of an iteration of Merge. Following this, Merge continues until the phase head is added, which contains a valuation, let us assume [+ accusative], for the

[140] For an alternative account see Richards (2011).

case feature that was uninterpretable as part of the feature matrix of D. At this stage the derivation stops and Agree is triggered.[141] The probe V, which inherits its feature matrix from the phase head *v**, looks down the structure for an appropriate goal (a goal with which it matches in features) and once it is found there is a mutual sharing of features. Firstly, *v** shares its case feature with D, thus deleting the uninterpretable feature [+/- case], and D shares is φ-features with *v**, thus making them interpretable at the interfaces. At this point the Agree operation is complete.

Once the operation of Agree has taken place any instances of Internal Merge can apply.[142] Internal Merge is enabled through the structure of the phase. In order to understand the notion of a phase further we can reintroduce X-bar theory and produce a model for a phase. For instance, take a phase head X (which might be C or *v** for example), the phase head will have attached to it a complement, which is the category it is initially merged to, and a specifier position, which is the position through which a syntactic object lower than the head may be moved into. The phase head projects up the derivation, in a manner identical to a phrase head, to label the resultant structure of being of type X. Furthermore, we can distinguish between what is termed the phase edge and the phase interior, where the edge contains the phase head and the specifier and the interior contains the complement to the phase head. Movement thus occurs as a syntactic object is moved from the phase interior (the complement) into the phase edge (the specifier). For instance, in (10) the phase edge contains X and SpecX, whereas the interior contains just the complement phrase YP:

(10)



[141] It should be noted that Chomsky takes V to act as the probe in virtue of V inheriting the feature matrix from *v**, and the same goes for T inheriting a feature matrix from C (2008, 148).

[142] Our analysis implies that these operations proceed in an order with Agree applying first and Internal Merge second. However we can just as easily take the two to operate simultaneously. Nothing in our analysis would be affected.

Internal Merge is an operation that draws an element up from the phase complement (its interior) and places it in the phase's specifier (its edge). As we can see in (10), ϑ is moved up the derivational workspace from the complement phrase (YP) to the phase edge (SpecX) leaving behind a copy. Following Transfer the parameters of the particular language in question will dictate whether the lower copied element is phonetically realised or not.

Internal Merge creates a chain that links the various instances of the item that has moved (Boeckx 2008, 31). The varying forms of movement form varying chains, for instance head movement creates a chain between two heads and A'-movement between specifiers. Critically, every instance of move is from the phase interior to the phase edge (Legate 2003). Additionally, an item may go through multiple instances of move. It is through this process that questions such as (6) are explained, repeated below:

(6) [Which team] does Ronaldo play for [~~which team~~]?

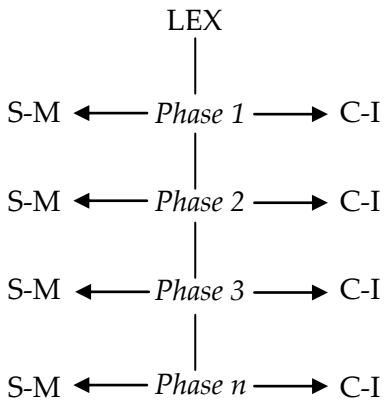
The process whereby an element moves multiple times up a derivation is termed successive cyclic movement and it is enabled by the phasal architecture of minimalism (for more on successive cyclic movement see Sato 2008; 2009).

Once Agree and Internal Merge have operated the process of Transfer can take place. Transfer is the operation that sends the syntactic object produced to the interfaces to receive a phonetic and semantic assignment. Within phase theory, Transfer applies to the phase complement. In other words, only the complement is sent for an assignment and it then becomes frozen as far as syntax is concerned. What this means is that anything within the complement becomes dormant to syntactic operations happening further on in the derivational workspace. For instance, Gallego notes that DPs whose case has been checked (thus signalling Agree, Internal Merge, and Transfer) become 'inert' with respect to further syntactic computation (2010, 36). This is called the 'phase impenetrability condition' (Chomsky 2008, 143). It is for these reasons that movement takes place to the edge of a phase as this allows the element to be accessible to

further syntactic operations, which is critical to successive cyclic movement. Following Transfer, the syntactic component has visible to it only the phase edge and the syntactic category it exhibits. This is syntactic derivation by phase.

Let us briefly recap FL as presently conceived in minimalism. The input to syntax is LEX. A lexical array is built up from which the syntax draws its input. Syntax contains a simple recursive operation called Merge that builds up recursive structures. Once a certain amount of structure is built, and a phase head is reached, Agree is triggered, which forces all unvalued features to become valued through feature-matching. The Agree function is forced through legibility conditions imposed by the interfaces. Once Agree has been completed any operations of Internal Merge occur. Finally, Transfer applies and the syntactic object built up is sent to the interfaces C-I and S-M to receive a semantic and phonetic assignment respectively. Following this we can modify our picture of FL in (1) as follows:

(11)



In (11) we illustrate that the syntactic component works in phase based stages, which leads to multiple instances of Transfer to the interfaces. We can call this picture of FL a multiple transfer theory.

Whichever form of FL one adopts it must be understood as a natural object. Research into its structure and operations must therefore be understood as a naturalistic enterprise (see Hinzen 2006, 156-157 for a detailed account of the various formulations of FL). Finally, all of the aspects of, and operations described in, FL are meant to uncover a mental reality that lies behind natural language. Research into FL is meant to be understood as streamlined with work in biology more generally. The empirical work used

in designing FL comes from a variety of sources including but not limited to biology, neuroscience, and linguistic fieldwork (Jenkins 1999). Through this amalgam of empirical strategies one can hope to provide a linguistic theory that is explanatorily adequate. In what follows we will attempt to provide an account of natural language semantics that is built using the core tenets of generative grammar and its latest incarnation in minimalism. The reason for doing so is that much of the architecture in semantics that has been posited over the years can be seen as originating in syntactic structures once we accept that syntax and semantics are not autonomous. A grammatical theory of meaning will thus endorse the naturalistic values of generative grammar and research into FL.

5.3

NATURALISED SEMANTICS

As we saw, minimalism posits a C-I interface as part of FL whose job it is to provide a semantic assignment to a syntactic object that is transferred to it. It follows from this that the C-I interface is also an object of naturalistic investigation and so is the interaction between the syntactic component and C-I. It has been noted that, traditionally understood, philosophers take the C-I interface to include some type of formal semantics that assigns a logical form to syntactic objects. However, to reiterate Hinzen's warning "[w]e can *formalize* semantics, to be sure. Yet, this won't tell us why it exists or why it does what it does" (2008, 348). Of course, these are precisely the questions that a naturalistic enterprise of semantics is concerned with. A naturalistic enquiry into semantics will seek answers to the question of why semantics exists at all, and why it operates in the manner that it does. The answer that we will put forward in response to both of these questions is to be found in grammar. As a guide, we will follow Hinzen in taking syntax to produce a 'skeleton of thought' (2009b, 128), and hence likewise defend the view that a theory of "syntax therefore is a theory of semantics" (2008, 350). Therefore, the reason for the existence of natural language semantics, and its operating as it does, is that our species has a grammatical mind.[143]

[143] The idea that grammar informs semantics in such a manner as to ground a 'skeleton of thought' in conjunction with the truth-conditional structures it enables is not new. In fact, in the 12th and 13th century medieval logicians and grammarians likewise considered grammar to be central to the construction of truth-conditions, and may well be understood as defending one of the first 'grammatical theories of meaning'. As Ebbesen notes, "by

5.31

THE SKELETON OF THOUGHT

Within minimalism, every syntactic derivation is understood to progress in an identical manner, syntactic categories are derived in a particular order to enable a clausal, that is, sentential, structure. We can call the structures produced a 'clausal skeleton', and following Hinzen associate them with a 'skeleton of thought'. The clausal skeleton is captured in the following categorical order:

(12) [CP C-T-[*v**P v*-V-[DP D-N]]]

The structure in (12) depicts the three core phases in a syntactic derivation and the basic projections that they include. We can, using broad brush strokes, describe the tripartite structure as crafting object reference (D), event reference (*v**), and clausal reference (C).

Syntactic structure is built from the bottom up. To give an example, consider a toy sentence comprising a subject, object, and transitive verb. The derivation would proceed as follows, first of all a structure is built that bares the grammatical object (DP), next the grammatical object is merged with a verbal phase (VP) and a larger verbal shell (*v**P), following this the grammatical subject (DP) is merged and a thematic matrix is formed providing the DPs with thematic roles, and finally this event structure is tensed relative to the speech-event (T) and given sentential force amongst other things (C). We might state therefore that the derivation proceeds through three levels: the construction of arguments, the placement of those arguments in a thematic matrix relative to the verb, and the situating of this clausal matrix in the discourse. In accordance with UG, we will assume that the clausal skeleton is universal across languages, and that language variation is a matter of which projections are morphologically realised and what movement chains are enabled.

Through our analysis of FL above, we can state that the C-I interface is responsible for the assignment of semantic content to a syntactic object. C-I is meant to capture the 'duality of semantics' through assigning both conceptual and intentional information to the syntactic object that is sent to

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extending the requirements to well-formedness beyond those of grammar, the medievals got a method of stating the truth-conditions of sentences" (1981, 41).

it (Chomsky 2008, 140; Munakata 2009, 48). The thesis to be advocated here is that much of what is posited in C-I as part of the rubric of logical form or pragmatic machinery can be explained by a clausal skeleton that is derived in the syntactic component. The argument will proceed through an analysis of the three phases C, *v**, and D and will demonstrate that each has a significant and distinct impact on how we should understand the semantic infrastructure in C-I. The result will be a radical clear-out of machinery employed in C-I to deal with compositional semantics. This work will provide the grounding for our grammatical theory of meaning.

5.32

C

The C phase is the point in a syntactic derivation where a clausal structure is realised. A syntactic derivation that has reached the C level is either an embedded clause that is part of a continuing derivation (as the complement to an attitude verb for instance) or it is a matrix clause. For the purposes of this analysis we will stick to looking at matrix clauses. The role of C in a derivation is multifaceted. For instance, the C phase assigns tense to the *v** shell in its interior, which provides the event captured in *v**P with a temporal value relative to the speech-event as well as values for the speech-event location, and the logophoric agent and patient (Sigurðsson 2004b, 232; 2007, 154). As well as tense, C is responsible for providing the clause with illocutionary force, mood, focus, and so on, which locates the clause in the speech-event's discourse. It follows naturally from this that the C phase is responsible for creating something that is usable by the speaker. Finally, we can understand the C phase as being the level of grammar for which the question of truth arises (Hinzen 2007, 165). A matrix CP therefore produces truth-conditional content that is placed in the speech-event at hand.

As a point of departure into the semantic contribution of C we can begin with a discussion of illocutionary force, which is pivotal in the immersion of the clause in discourse. The illocutionary force that an expression carries informs us as to what contribution it should be understood as making in the discourse, it determines whether the derivation expresses "a question, a declarative, an exclamative, a relative, a comparative" and so on (Rizzi 1997, 283). The illocutionary force attached to a clause is often silent in English, but it nevertheless has an effect on interpretation. For instance, the sentence

Ronaldo is a footballer has no phonetically realised material acting as a marker of its illocutionary force, but it is still interpreted as a declarative and amenable to an inquiry into its truth. The illocutionary force attached to an expression ζ provides a speech-act involving ζ with a certain purpose, the purpose of declaring ζ, questioning ζ, ordering ζ, and so on.

There are however many languages that do phonetically mark force (including literary English). For instance, (13) and (14) explicitly mark for declarative illocutionary force on C as illustrated by the fact that the force projection in CP is phonetically marked by *for* in (13) and *che* in (14):

(13) [CP For], football is more than just a game.

(14) Credo [CP che] loro apprezzerebbero molto il tuo libro.
I believe that they would appreciate your book very much.[144]

In virtue of being explicit we must assume that the force elements are part of the syntactic derivation. According to Rizzi, the C projection in syntax is not one unitary projection but is instead a collection of projections whose positions contain force (ForceP), topic (TopP), focus (FocP), and finiteness (FinP) phrases. This is observed by Chomsky also, who states that projections such as C are "cover terms for a richer array of functional categories (2001, fn.8). The multifaceted analysis of C provides a richer and more complex interaction of the clause with discourse. The reason for the split CP analysis is that sentences such as (15) in Italian have a multiple of these projections phonetically marked (we will mark the projections in the original and the direct English translation):

(15) Credo [ForceP che] a [TopP Gianni] [FocP questro] [TopP domain] fli [TP dovremmo] [v^*P dire].

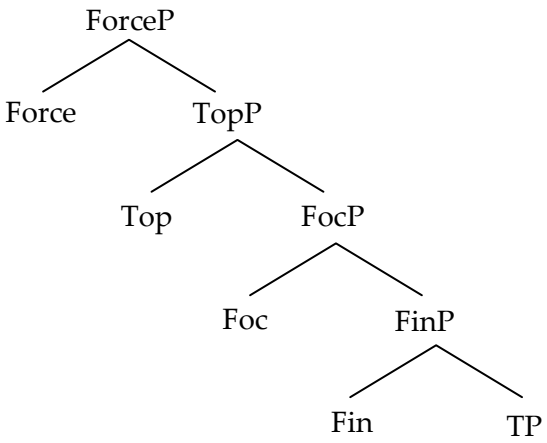
I believe [ForceP that] to [TopP Gianni] [FocP this] [TopP tomorrow] we [TP should] [v^*P say].

In virtue of these elements being phonetically realised, and realised above TP in terms of the syntactic tree, we cannot take CP to be a single projection (1997, 295-297; Abels 2010). We can therefore split up CP into the following

[144] The second example is taken from Rizzi (1997, 288).

set of projections (with specifiers omitted), which is enabled through the methodology of syntactic cartography:[145]

(16)



At this point we can raise the following question, what impact does the C phase, and the multitude of projections it contains, have on the semantic assignment at C-I? The answer is that, the values that are attached to the projections in C give an utterance a place within the ensuing discourse. The CP therefore codes for intentional information regarding, at least, the illocutionary force that is being expressed in the clause. We need not then proliferate C-I, and by extension any pragmatic machinery, with operations designed to facilitate illocutionary force. Moreover, the grammar of C facilitates the interaction of truth-conditional content conceptualized in the *v** shell's thematic matrix with the ensuing speech-event.

A further development of the C domain can be seen in the extensive cartographic problem developed by Cinque (1999). Cinque provided an intricate account of numerous projections in C, besides those listed above, that fall within an adverbial hierarchy.[146] The adverbial hierarchy is simply

[145] Syntactic cartography is a method through which one attempts to establish the hierarchy of phrases in a grammatical derivation through cross-linguistic research. The aim is to provide a universal hierarchy for syntactic phrases, and thus to uncover what projections exist and where they are situated in relation to each other. In other words, the methodology is one of mapping the universal grammatical hierarchy that underpins natural language. The method can be seen in practice in the work of Rizzi (1997), Cinque (1999), Borer (2005), Sigurðsson (2004a; 2004b; 2009; 2012), and many others.

[146] The term adverbial hierarchy is meant to capture the idea that adverbs follow a strict word order that is spread throughout the clausal hierarchy exhibited in syntactic derivations. The hierarchy is meant to hold universally across languages and is therefore part of UG. The idea is that given a sentence containing two adverbial projections, those projections will

the strict order in which certain types of adverb must fall within a sentence in order for it to be grammatical, as exhibited in (17) below. Just as with illocutionary force, the adverbial system found in C likewise correlates with semantic information. The adverbial system is more refined than Rizzi's split CP hypothesis and is expanded to include, for instance, a range of adverbs that express grammatical mood. The adverbial hierarchy captures a range of types of adverb including those that exhibit grammatical mood, which can be listed as follows: $\text{Mood}_{\text{speech-act}}$ (Frankly), $\text{Mood}_{\text{evaluative}}$ (Suprisingly), and finally $\text{Mood}_{\text{evidential}}$ (Allegedly) (1999, 76). Adverbs that occupy these projections enable the speaker to express how they feel about the clause that follows, and how it should be understood in the speech-event. Take (17) for example where the speaker's mood towards the clause is explicit:

(17) [$\text{Mood}_{\text{speech-act}}$ ∅ [$\text{Mood}_{\text{evaluative}}$ Surprisingly [$\text{Mood}_{\text{evidential}}$ ∅]]] John was late for his lecture.

The clause that follows the adverb in (17) can be felicitously used on its own. However, the addition of the adverb lets the audience know that John's tardiness is unexpected by the speaker. Once again, the adverbial system that Cinque posits involves projections in C that are related to intentional information that accompanies the expression, including but not limited to grammatical mood. Finally, under the strong interpretation of Cinque's hierarchy we can understand the order and existence of these adverbial projections to be part of UG (1999, 76; 2012, 9-11).[147]

It is possible to enrich C further however, to include syntactic projections dedicated to the speech-event. According to Sigurðsson, we can posit a 'syntactic speech-event' that "contains the time and location of speech… and the inherent speech participants, that is, the logophoric agent and patient" (2004b, 230). Critically, these projections associated with the syntactic speech event are part of C and enrich and unify with Rizzi's split CP analysis and Cinque's hierarchy (2004b, 230; 2012, 326). The idea behind

follow a strict order with one being higher up the hierarchy, and thus constructed later in the syntactic derivation, than the other.

[147] It is worth mentioning that Cinque's adverbial hierarchy actually stretches the whole way down the clausal skeleton (2002a). In his own words, "the various classes of adverbs (more accurately, ADVPs) are also ordered among each other in a syntactic hierarchy, and that this hierarchy turns out to match exactly the hierarchy of Mood, Tense, Modality, Aspect and Voice heads" (2012, 10).

this enriched CP is that syntactic features associated with tense and person (at a minimum) are valued in relation to projections in C associated with speech-time (S_T), speech-location (S_L), and logophoric agent (L_A) and patient (L_P) (2007, 154). The syntactic speech event that is formed through the projections in C therefore impacts how the clause becomes embedded in a speech-act and leads to what Hinzen calls a 'deictic frame'. Critically, the enrichment of C is said to hold universally (Sigurðsson 2012), and is taken to operate even when such elements are not phonetically marked (2009, 172). These syntactic heads may therefore be called 'active silent heads'.

The contribution of the C phase to semantics is therefore extensive. The C phase takes a syntactic object and turns it into a clausal structure, it values its temporal and spatial aspects of the clausal event (relative to the time and location of speech), values its arguments (relative to logophoric agent and patient), situates the clause in an illocutionary act, expresses the speaker's mood, and most importantly provides an expression with truth-conditional content. The complexities of the projections found in C are intuitively posited by philosophers as part of either C-I or some general pragmatic machinery that the speaker has access too. The reason for this is likely that the material is often not phonetically realised. However, there is a wealth of evidence to suggest that they are grounded in grammar as part of the syntactic derivation. In defending the significance of grammatical structure we therefore slim-down the operations required in C-I and plausibly pragmatics as well, and all this is achieved without proliferating syntactic structure one iota. All of the syntactic projections in C posited above are called-for independently of our semantic program, which suggests that further syntactic research may uncover further semantic correlates.

5.33

*v**

We now need to turn to look at what syntax can offer us with respect to developing a clause-like structure in the first place. The core point that we will make is that the *v** phase organizes and establishes a thematic matrices, which can then be situated in a speech-event through C. To follow through with our aim of reducing the burden of semantic machinery in C-I we can

first look at how a thematic matrix is established using the formal system from §2.2.

Predicates come in various shapes and sizes and accordingly contain a varying number of argument places, called the predicate's 'adicity'. For instance, a predicate of type <e, t> has one argument place and is thus monadic, a predicate of type <e, <e, t>> has two argument places and is thus dyadic, and so on. We can illustrate predicate adicity in natural language through the examples below in (18) – (29):

(18) Intransitive Verb
[1 John] is sleeping.

(19) Transitive Verb:
[1 John] loves [2 Mary].

(20) Ditransitive Verb:
[1 John] gave [2 the book] to [3 Mary].

The role of the verb in (18) – (20) is to organize the arguments into a structure and assign them roles in the event it captures. This is what we call a thematic matrix. For instance, the thematic matrix of (19) indicates, through the roles it assigns, that John loves Mary but not that Mary loves John. Likewise, the thematic matrix in (20) indicates that John gave the book to Mary but not that Mary gave the book to John. In other words, the thematic matrix captures the distinct thematic roles that the arguments take on. In (19) it ensures John is interpreted as the agent and that Mary is interpreted as the patient.

We can provide a formal semantic account using Heim & Kratzer's functionalism (1998). With respect to (18), functionalism will argue that its thematic matrix is derived through what is termed a lambda function, which is a function that saturates the predicate with an argument. The lambda function creates a truth-schema for the sentence that can be illustrated as follows:

(21) John is sleeping.
'λx. x is sleeping (John)' is true iff x is sleeping.
'John is sleeping' is true iff John is sleeping.

The idea behind functionalism is that the truth-conditions of (18) are derived through functional application, which creates a thematic matrix through saturation of the predicate that results in John being interpreted as the agent of the clause.

According to Heim & Kratzer, the functional application contains what they term a 'prominence relation' between thematic roles, which are captured in the derivational system employed in functionalism. Following Grimshaw (1990), Heim & Kratzer state that, with respect to (19) the prominence is that of the agent over the patient (1998, 54), which is enabled through the order in which arguments take part in functional application:

(22) John loves Mary.
'$\lambda y.\ \lambda x.\ x$ loves y (Mary)(John)' is true iff x loves y.
'$\lambda x.\ x$ loves Mary (John)' is true iff x loves Mary.
'John loves Mary' is true iff John loves Mary.

The step by step functional application thereby follows the idea of a bottom up derivational dynamics. The first instance of functional application saturates the object position of the verb with the argument Mary and in its second it saturates the subject position with the argument John. It is through the order in which the arguments reduce the verb's adicity that the prominence relation is established. In the first instance Mary receives the thematic role of patient, and in the second John receives the thematic role of agent. It is through this method that the formal semantics of functionalism establishes a thematic matrix. Critically, in virtue of being determined by logical form the matrix is constructed as part of the C-I interface.

The confusing part about the account of thematic matrices by formal semantics is that it appears to offer nothing that cannot readily be captured in the expression's underlying grammar. Baker, for instance, argues that thematic relations and thematic roles directly correlate to grammatical structure and grammatical positions (1988, 46):

(23) Uniformity of Theta Assignment Hypothesis

> Identical thematic relationships between items are represented by identical structural relationships between those items at the level of d-structure. (1988, 46; 1997, 74)[148]

Baker's idea is that the syntactic component produces a thematic matrix prior to any instance of Transfer, and that the structure it produces is identical to a thematic matrix, a matrix that dictates the roles of the arguments in the clause. The derivation of the *v** phase produces enough structure to enable a thematic matrix to be formed, which means that it is produced prior to C-I getting its hands on it.

Using Baker's work we can look at this hypothesis in more detail. One piece of evidence in favour of the hypothesis is that it is uniformly the case that the agent of the argument structure occupies the grammatical subject position whereas the patient or theme occupies the grammatical object position. For instance, take (24):

(24) Ronaldo kicked the ball.

As Baker correctly points out, it is never the case that the patient or theme occupies the grammatical subject position (1996, 2).[149] For instance, the proposition expressed by (24) cannot be paraphrased as (25) whilst remaining grammatical. That is, we cannot interpret *the ball* as the theme and *Ronaldo* as the agent in (25):

(25) *The ball kicked Ronaldo

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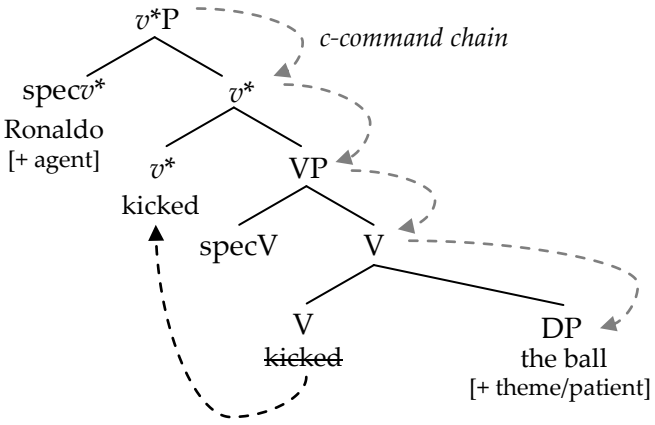
[148] The term 'theta' here is another word for argument-role. A theta role is a role carried by an argument in a sentence, for instance the role of being the sentence's agent. D-structure is shorthand for deep-structure and corresponds to a level of syntactic representation that was defended prior to its eradication in minimalism (see Chomsky 1995). The deep-structure representation of a sentence is the level at which arguments are merged to the grammatical derivation and receive their theta-roles. The deep-structure of a derivation was understood to take place prior to any instance of movement, which are understood to form a level of representation termed surface-structure. For instance, the two sentences *John loves Mary* and *Mary is loved by John* have the same deep-structure but differ as to their surface structure. The names *John* and *Mary* have the same argument roles in each and the two sentences thus exhibit the same thematic matrix, but the in each case the deep-structure is differently expressed.

[149] It is worth pointing out that in a passive sentence the grammatical object has been moved up the derivation about the verb and subject. Critically, the thematic matrix is assigned whilst the agent is in the grammatical subject position and the theme is in the grammatical object position.

What is the reason for this asymmetry? The simple answer is that the patient or theme of (24) must originate in the syntactic position to which the appropriate thematic role can apply.

The thematic role of patient/theme is thereby associated with a syntactic position directly c-commanded by the verb itself, the grammatical object. Agents on the other hand are not c-commanded by the verb and appear higher up the syntactic structure, always occupying the grammatical subject position.[150] Rather than being c-commanded by the verb, the agent of (24) actually c-commands the verb and by extension the theme. We can illustrate this in the following syntactic tree:

(26)



The tree in (26) illustrates the c-command chain that is present in the construction of (24) and it is through this chain, which is simply a structural relation between syntactic positions, that the argument structure is arranged.[151] The subject c-commands the verb and whatever occupies this position receives the thematic role of agent, and the verb c-commands the object position and whatever occupies that position receives the thematic role of a patient/theme. Additionally, c-command links perfectly with

[150] At this point we can reiterate Radford's definition of c-command as "a structural relation between two constituents. To say that one constituent X c-commands another constituent Y is (informally) to say that X is no lower than Y in the structure (i.e. either X is higher up in the structure than Y, or the two are at the same height)… a constituent X c-commands its sister constituent Y and any constituent Z that is contained within Y" (2004, 440).

[151] At this juncture it is worth pointing out that the verb *kicked* moves to the *v** position following the operations that take place at the phase level. It would move as part of the instances of Internal Merge triggered by the phase head *v**. This instance of movement is founded upon the split VP analysis (Radford 2004, 336-367).

Grimshaw's prominence relation.[152] Therefore, it appears that the syntax of *v** contains all of the necessary information required for creating a thematic matrix.

Let us bring this account up to date with minimalism and phase based derivations. The first point to make is that the argument structure is completed and the thematic grid assigned in the *v**. The c-command relations that are central to our syntactic account of argument structure are secured in the *v**. This accords with the view that the *v** phase corresponds to the organisation of conceptual information. To recall, one of the central structural features of a phase is the distinction and resultant asymmetry between the phase edge and phase interior. Recalling (10), the phase interior contains all of the structure from VP downwards. The phase interior therefore includes the theme/patient of the thematic matrix. Conversely, all of the structure above VP, which includes the phase head *v** and its specifier, is in the phase edge. The phase edge therefore includes the agent of the thematic matrix. The geometry of the *v** phase therefore corresponds with the thematic matrix and the roles of agent and theme/patient. Agents are in the *v** edge and themes/patients in the *v** interior.

The development of our grammatical theory of meaning is one step closer with the above analysis of how grammar produces thematic matrices. There is reason to believe that any machinery whose role it is to construct thematic matrices in C-I is redundant. The syntactic component provides all of the necessary structure and information regarding thematic roles and their relation to the verb. We can thereby reduce the amount of machinery in C-I for compositional semantics. To ignore this would be to inflate C-I unnecessarily. At this point in our analysis we have the *v** phase producing clause-like structures and C turning them into actual, truth-evaluable, clauses situated in a speech-event. The 'skeleton of thought' is beginning to take shape, and we therefore make a step toward fulfilling Hinzen's claim that "syntax… is a theory of semantics" (2008, 350).

[152] Grimshaw's prominence relation simply states that arguments are valued in a hierarchy that matches with grammatical hierarchy as produced in a tree derivation (for more on this see Heim & Kratzer 1998, 54-55).

5.34

D

The third and final stage in our analysis of the clausal skeleton involves the D phases, wherein arguments are found. So far we have employed the work of Chomsky (2001, 2008) and others (Boeckx & Grohmann 2007; Boeckx 2008; Gallego 2010) to state that the *v** and C projections are instances of syntactic phases. However, there is reason to suspect that these two projections are not the only phases but instead there is, at least, one further phase that is associated with the D projection. Svenonius argues that the nominal projection of D is in fact highly related to the clausal skeleton consisting in C and *v**, and that much like this clausal skeleton has a strict syntactic order that enables movement so does the D projection (2004, 259).[153] Sheehan & Hinzen take this idea further and argue that the three phases signify three 'referential dimensions' of language, with C, *v**, and D corresponding to propositions, events, and objects respectively (2011, 1). This tripartite distinction in grammar is then understood as expressing a grammatical ontology. We have already seen how the *v** phase might be associated with events (through thematic matrices) and the C might be associated with propositional structure (through tense and force for instance), in what follows we will outline D's role in constructing object reference and what this tells us about the semantics of arguments.

5.341

DP AS A PHASE

The first thing to establish is that each DP is a phase. Initially, Chomsky's view was that C and *v** were phases in virtue of the fact that they triggered Agree, Internal Merge, and Transfer. The triggers are standardly taken to be the result of phase heads containing an uninterpretable feature(s).[154] It is through the need to rid phase heads of these uninterpretable features that C and *v** (strictly speaking these features are inherited by the tense phrase

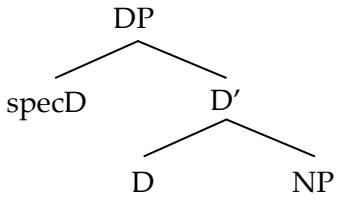
[153] For a historical perspective on this claim, one of the first mentions of the similarities between the structure of clauses and that of nominals is to be found in Abney (1987). A nominal projection is the name given to the syntactic projection(s) wherein arguments fall.

[154] Richards states that this view of phase heads being 'all-powerful' is not on an equal empirical footing to a theory that takes phases to be constituted by lexical sub-arrays (2011). The debate between the two positions will not have an impact on our thesis, but it is worthwhile noting its existence.

TP and verbal phrase VP respectively) create a probe-goal relationship with a lower head, which in turn provides structural case to the arguments. Acting as the probe in the Agree operation, the phase heads match their case value with the probe in their domain. In other words, one of the responsibilities of the phase heads is to provide arguments with structural case. The problem with taking D to be a phase is that it does not appear to assign case.

When we looked at the C phase we found that it could be dissected into a multitude of further functional projections including force, topic, focus, and finiteness, in addition to a whole host of adverbial projections and projections related to the speech-event. So far considered, our view of D is limited to the following basic structure:

(27)

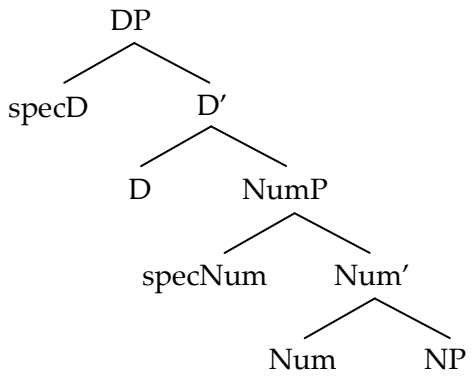


Following Abney, we will take all arguments to be DPs (1987, 179-182).[155] Hence, the structure in (27) is present whenever we have an argument. We can deconstruct DPs further into more functional projections, which include, at least, a number projection (NumP).[156] DPs therefore divide into (28):

[155] It is worthwhile noting that this analysis is not universally accepted. For instance, Bošković suggests that the majority of Slavic languages, and some others, lack a determiner layer above NP (Bošković 2005; 2008; 2009; 2013; Zlatić 1998). However, these suggestions are questioned by Progovac (1998), Rutkowski (2002), Trenkić (2004), Pereltsvaig (2007), and Caruso (2011). Overall, there is enough support for the existence of a D layer above NP for us to continue our analysis of it as a phase. Interestingly, when a D layer is rejected, treating NP as a phase becomes more tenable.

[156] The above analysis oversimplifies what DPs might contain. For a more thorough analysis of the types of functional projections that may be present in DPs see Zamparelli (2000b) and Borer (2005). For the task at hand however our account of DPs is sufficient.

(28)



Introducing this additional functional projection NumP gives us some insight into the first reason as to why D may well be a phase head. Consider the differences between the following sentences:

(29) a. John ate [$_{DP}$ [$_{NumP}$ one [$_{NP}$ steak]]].

b. *John ate [$_{DP}$ [$_{NumP}$ three [$_{NP}$ steak]]].

c. John ate [$_{DP}$ [$_{NumP}$ three [$_{NP}$ steaks]]].

As we can see from (29a) to (29c) there exists a close relationship between Num and the NP that it c-commands. In (29a) Num contains *one* and hence the noun attached, *steak*, is morphologically realised in the singular. Moving onto (29b) we can see that Num contains a different lexical item that is not compatible with taking a NP complement whose number feature is valued as singular. Hence, (29b) is ungrammatical due to a feature clash between Num and N. Finally, in (29c) Num and N agree in their respective number features and hence there is a suffix *-s* morphologically realised on the noun *steak* and we get a perfectly grammatical sentence.

All this becomes clearer once we recall that a word such as *steak* starts life as the lexical root √steak, which means that it contains no valued number feature. It must receive this feature from somewhere in order for us to be able to account for the morphological differences observed in N through (29a) to (29c). The clearest answer to this is therefore that Num provides N with a valued number feature thereby ridding it of the uninterpretable feature that it carried with it once initially merged.[157] What we observe in the relation between Num and N appears to be the sharing of features, an

[157] As Borer observes count nouns such as *steak* can be transformed into mass nouns so long as D and Num are empty as in *John ate steak* (2005, 102).

instance of Agree, which is noted by Svenonius (2004, 268). It is results such as these that indicate that D might in fact be a phase head.

In addition to instances of numerical feature agreement in D there is also strong evidence that D triggers instances of Internal Merge, which is another strong indication of phasehood. There is extensive evidence that there exists N to D movement in Western Romance (Longobardi 1994; 2005), which can be seen explicitly in Italian. Furthermore, this adds support to the view that all NPs are in fact headed by DPs. Interestingly for our purposes Longobardi's thesis is particularly pertinent to the grammar of proper names and definite descriptions. The empirical work Longobardi provides illustrates that Italian proper names, when used to refer to people, can occur with or without a determiner and remain grammatical. The idea can be illustrated in the following pair of sentences (reproduced from Longobardi):

(30) a. Petrarca è uno dei miei poeti preferiti.
Petrarch is one of my favourite poets.

b. Il Petrarca è uno dei miei poeti preferiti.
The Petrarch is one of my favourite poets.

As we can see from the above examples, in Italian the proper name Petrarch can occur on its own or following a definite article and remain equally grammatical (2005, 5). Longobardi then raises a question over "whether Petrarca of (30a) occupies the same surface position as Petrarca of (30b) or rather as il of (30b)" (2005, 5). The evidence would suggest that *Petrarca* of (30a) occupies the position of *il* in (30b), namely the D position, rather than that of *Petrarch* of (30b). This can then be illustrated through the interaction of proper names, definite articles, and adjectives. The upshot of this is that, an adjective may appear in the prenominal position when there is also a determiner present, but is banned from such a position if there is no such determiner:

(31) a. Il mio Gianni ha finalmente telefonato.
The my Gianni finally called up.

b. *Mio Gianni ha finalmente telefonato.
My Gianni finally called up.

However, the proper name Gianni and possessive adjective *my* can co-occur but in such an instance the possessive must be postnominal:

(32) Gianni mio ha finalmente telefonato.
Gianni my finally called up.

Comparing (31a) and (32) we can see where this analysis is heading. When a determiner is present the possessive can appear in the prenominal position and when it is absent it cannot. This therefore suggests that in (32) *Gianni* is occupying a syntactic position above the possessive. In (31a) *Gianni* is occupying the N position and in (32) it is occupying the D position (2005, 6). Longobardi therefore draws the conclusion that proper names in Italian, when a determiner is absent, are moved into the D position, an instance of N-to-D movement.[158] The analysis is extended to English and universally across languages to state that whenever we have a proper name acting rigidly it has gone through an instance of N-to-D movement (2005, 9; Sheehan & Hinzen 2011, 7).

The evidence presented above strongly suggests that D is a phase head and that a DP constitutes a complete syntactic cycle. There are clear instances of D triggering both Agree and Internal Merge, which are characteristics of a phase head. Firstly, numerical agreement appears to be triggered within DP, which allows the DP then to merge with a verbal structure with its number feature already valued (something that is central if it is to then rid *v** of its uninterpretable number feature). Secondly, as Longobardi hypothesizes, if a proper name is present in a DP when D is empty, then it is forced to undergo N-D movement, which is explicit in Italian and silent, but still present, in English. We conclude, therefore, that D is indeed a phase head and that DP is consequently a phase. Taking this analysis forward we can now look to see what the DP phase contributes in terms of semantics. In doing so, we will have a full analysis of the clausal skeleton outlined (12) and the semantics contribution of the three phases.

[158] Other instances of elements moving upwards and out of DPs, including successive cyclic movement of *wh* items, also point towards DP being a phase. It is important to note that the Italian examples and analysis is entirely drawn from Longobardi (2005). These examples illustrate everything that is needed in order to establish the existence of movement in DPs, which is all we are interested in at the moment (for more on the primary empirical evidence see Longobardi 1994; 1996; 2005).

5.342

THE SEMANTICS AND TOPOLOGY OF DP

The work so far on D has led us to the conclusion that it is a phase head. Prior to this we have argued that the phases v* and C contribute heavily to the construction of semantic information, both conceptual and intentional, carried in an expression. We have provided reasons to believe that the syntactic skeleton exhibited in language is productive with respect to what is traditionally labelled semantics. The final part of our analysis of the clausal skeleton concerns the D phase, which we will take to produce the semantic information associated with arguments and whether or not a particular argument is taken to be referential. We will argue that the D phase determines the place of the argument within a 'referential hierarchy', which directly impacts its semantic contribution and how the expression may be felicitously used.

In what follows we will adopt what Martin & Hinzen term the 'grammar-reference link hypothesis', which is repeated below:

(33) The Grammar-Reference Link Hypothesis

> Referential strength (from predicativity to deixis) is not an intrinsic property of lexical items, but rather of certain grammatical configurations. (Martin & Hinzen 2014, 102)

The hypothesis can be split into the following two claims. The first is that reference is not something we can ascribe to an item in LEX (or a property derived from lexical items merged to form an argument). The second is that an account of an argument's referential capabilities is to be found grammatical structure. The grammatical configurations enabled by the D phase exhausts the potential forms of reference that an argument may take. The grammatical explanation depends upon the topology of the DP and the phasal architecture it exhibits. As Martin & Hinzen note, with respect to DPs, "there is a basic bi-partite division into a predicative core ('the interior') and a referential periphery ('the edge')" (2014, 100). The interaction of this predicative interior with the referential edge gives the variety of possible semantic readings for arguments, ranging from purely predicative bare nouns to directly referential elements such as pronouns.

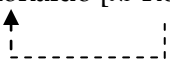
Martin & Hinzen term describe the DP topology as constructing a 'referential hierarchy' (2014, 97).

We can use the evidence presented above for N-to-D movement as an initial step towards a grammatical theory of reference. For instance, following our analysis of the lexicon as containing lexical roots, an element such as *Ronaldo* begins life as the lexical root √Ronaldo. As it stands in the lexicon the root √Ronaldo has, at least, two potentialities with respect to its role in the syntactic structure. The first is where we use the root predicatively as in (34), and in such an instance it will occupy the grammatical position N:

(34) That kid is [DP the [AP next [NP Ronaldo]]].

However, when it is to be used as a rigidly referential proper name it must occupy D. To do this the root is initially merged in N and then moved to D:

(35) That forward is [DP Ronaldo [NP ~~Ronaldo~~]]



The idea therefore is that N is associated with predicative (descriptive) meaning and hence if the lexical root √Ronaldo is merged and remains in this position it receives the same semantic reading as any run-of-the-mill noun. Conversely, if √Ronaldo is merged to N and then moved to D it will receive the rigid reading associated with proper names in a standard philosophical analysis. It is through such examples that Martin & Hinzen's hypothesis becomes favourable over standard philosophical work. For, it is not the case that the lexical root √Ronaldo is in any way destined to become a rigid designator. It is not referential whilst stranded in LEX. There is nothing special about the lexical root that renders it rigid. Whether it is interpreted predicatively or rigidly is entirely a matter of grammar. In other words, there is no such thing as a proper name (as understood in standard philosophical analysis) prior to its being placed in the appropriate grammatical configuration.

The 'grammar-reference link' hypothesis is meant to cover all of the variation in referential strength that arguments can have, which gives us a 'referential hierarchy' with a more expansive set of forms of reference than

that detailed in §2.4.[159] We can illustrate this with respect to the following sentences (using ∅ to indicate an empty projection):

(36) a. Ronaldo plays [DP ∅ [NP football]].

b. Ronaldo plays [DP ∅ [AP amazing [NP football]]].

c. Ronaldo scored [DP a [NP goal]].

d. Ronaldo scored [DP an [AP amazing [NP goal]]].

e. Ronaldo scored [DP the [NP goal]].

f. Ronaldo scored [DP the [AP amazing [NP goal]]].

g. That is [DP Ronaldo [NP ~~Ronaldo~~]].

h. Ronaldo scored [DP that [NP (goal)]].

i. That is [DP him [NP ∅]].

The referential hierarchy can be illustrated as follows. Firstly, (36a)–(36b) contain material in the phase interior N but no material in the phase edge D, and in virtue of this express a purely predicative reading, the weakest form of reference, with added specificity gained through the introduction of further descriptive content in the adjectival phrase. Secondly, (36c)–(36f) contain material in both the phase interior and the phase edge due to the demands of articles, and are open to both referential and quantificational readings with the adjective once again adding specificity, which we can label an intermediate form of reference. Thirdly, (36g) contains material in the phase interior that is then moved into the phase edge through N-to-D movement, and thereby expresses a rigid reading of the proper name. Fourthly, (36h) contains material in the phase edge and optional material in the interior, and is an instance of a deictic reference. Finally, (36i) contains a pronoun in the edge but no material in the interior (the interior *must* be empty), and expresses the strongest form of reference, person reference (for

[159] The referential hierarchy has similarities to the hierarchy of suppositions taken to exist in various works in medieval logic (Ebbesen 1981, 44; Spade 1982, 196).

a comprehensive table of the options concerning material in DPs see Martin & Hinzen 2014, 102).[160]

The grammar-reference link hypothesis is one that gives an explanation of the semantics of arguments purely in terms of their underlying grammatical structure. There are two points at work in this explanatory hypothesis: the first is an account of how arguments come to be referential in the first place (as opposed to quantificational or predicative), and the second is how the forms of reference that an argument can invoke emerge. Assigning an argument the appropriate semantics will therefore depend upon looking at the grammatical configuration that it is in, which includes an analysis of the DP and the wider grammatical configuration within which that DP resides. Critically, the theory involves positing no further structure in the syntactic component that is not already employed in a phasal theory of syntax. Each of the semantic distinctions that one can note in (36) is explained purely in terms of the phase edge/interior dichotomy and the positions that are filled. As with *v** and C the theory takes syntax to provide a blueprint for semantic information, which contributes to syntax being a 'skeleton of thought'. Furthermore, the analysis of D provides the last piece of the clausal jigsaw, the analysis of the forms of reference for arguments.

5.4

GRAMMATICAL STRUCTURE AND DIRECTIONS FOR USE

In the above we have looked at the way in which the grammar of the three phases codes for semantic information. We have therefore provided reason to think that we can understand syntactic structure as producing much of the semantic machinery traditionally associated with the C-I interface, including, but not limited to, illocutionary force and mood (in the C phase), thematic matrices (in the *v** phase), and the semantics of arguments (in the D phase). Through this analysis we have provided the first part of our answer to the two questions raised by Hinzen concerning 'why semantics exists' and 'why it does what it does'. This thesis contends that the answer

[160] Martin & Hinzen state that once the phase is structured as in (36h) we activate a 'deictic layer' of the DP, which is grammatical without the interior being filled or being deleted at the S-M interface (as in N-to-D movement). Further to this, they distinguish (36h) and (37i) by stating that (36i) also activates the person feature system and thereby "go further beyond this deictic layer" (2014, 102). We will return to these points in §6.11.

to the above questions is that semantics exists in virtue of being created by grammatical configurations and that these configurations inform and restrict semantic content. We can consider this the first stage in our grammatical theory of meaning and take it to directly contribute to the 'skeleton of thought'. Nevertheless, in order to provide a thorough account of definite descriptions we need to look at how grammatical structure informs language use and communication more generally. We need to give an account of how meaning gets into the world through language, which will provide us with an understanding of how to account for the three ambiguity problems that emerge in actual language use. Therefore, the next step in our theory will involve placing this grammatical grounding for semantics in a wider theory of language use, which will involve illustrating how we get to the level or linguistic meaning and what is said.

The thesis that we wish to defend is simple. It states that grammar creates a 'skeleton of thought', which, in a particular utterance, completes the compositional aspects of its linguistic meaning and what is said. In virtue of this, grammar informs and restricts felicitous uses of the utterance. We might say that grammar provides speakers with general directions for using any natural language expression. The view has a historical precursor in Strawson, who argued that semantics should be understood as a theory of general directions for using expressions (1950, 327). We simply ground these directions in grammar. The semantics of an expression ζ therefore is equated with general directions for using ζ, which are provided, on a particular occasion, by the grammar of the utterance.

To begin with let us briefly explain our reasons for endorsing the general directions view. Strawson's theory was developed in opposition to Russell's 'On Denoting'. We can understand Russell as defending the view that if one wished to argue that an expression was semantically referential, then it was important that we could guarantee the identification of its referent. As described in §3.1, it was concerns such as these that led Russell to deny a referential status to definite descriptions irrespective of how we may employ them on particular occasions. The upshot of this was that reference became understood as a property of an expression in isolation from its use, it became part of its lexical entry (under Neale's modification), which is one of the core tenets of literalism. The manner in which we may

use an expression on a particular occasion did not impact that expression's semantic-type.

Strawson argued that we should understand reference not as a property of a word itself, but as a property ascribed to a speech-act in which that expression is used. Therefore, terming an expression 'referential' without reference to its use is a mistake. In Strawson's own words:

> '[r]eferring', is not something an expression does; it is something that someone can use an expression to do. (1950, 326)

In other words, it is not the case that an expression is referential as it lays dormant in the mind of a potential speaker, but is instead something that emerges through use of that expression. Strawson thus puts his semantic theory forward as follows:

> Meaning (in at least one important sense) is a function of the sentence or expression; mentioning and referring and truth or falsity, are functions of the use of the sentence or expression. To give the meaning of an expression (in the sense in which I am using the word) is to give *general directions* for its use to refer to or mention particular objects or persons; to give the meaning of a sentence is to give *general directions* for its use in making true or false assertions. It is not to talk about any particular occasion of the use of the sentence or expression. The meaning of an expression cannot be identified with the object it is used, on a particular occasion, to refer to. The meaning of a sentence cannot be identified with the assertion it is used, on a particular occasion, to make. (1950, 327)

The theory outlined above requires some unpacking. The first point to make is that meaning is associated with the way a sentence or expression can function. If a term can function referentially in a speech-act, then it is understood as having a referential semantics. Meaning is determined with respect to use. The semantic theory thus follows from this observation, and involves producing an account of the general directions for using a particular expression-type or sentence-type. In other words, it is not the case that the meaning of an expression is determined by its use on a particular occasion, for instance the meaning of *I am tired* is not to be

associated with its use on an occasion to mean *I don't want to go to John's party*. Instead, the meaning of *I am tired* is determined by the directions for use that govern its felicitous employment across varying contexts and situations. The following will be an attempt to provide a grammatical analysis of general directions for use.

5.41

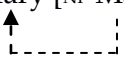
THE ROLES OF THE THREE PHASES

In the following, we will derive a sentence from scratch and produce something usable by the speaker. Through this we will be able to illustrate how grammatical structure feeds directly into general directions for use. The sentence we will use is that in (37):

(37) John loves Mary.

The syntactic component of language derives sentences from the bottom up (with respect to the hierarchical structure we have depicted throughout the thesis). That means that the first syntactic object that is created is the proper name Mary. As we have stated previously, a rigid proper name is enabled through N-D movement. The lexical root √Mary is inserted in the N position and then moved into D in accordance with Longobardi's observations (2005):

(38) [DP Mary [NP ~~Mary~~]]



The grammatical structure of (38) and the DP it exhibits is such that the phase edge is filled with the term Mary and the phase interior is empty in virtue of N-D movement. Assuming that the DP is a phase, the interior is then shipped to the interfaces. At the C-I interface, the interior appears with a deleted interior, and as such there is minimal semantic information provided.[161] We can tentatively take C-I to now contain the following structure, which we can illustrate as follows:

(39) [DELETED ~~Mary~~[I]]

[161] The construction of a semantic representation is completed phase-by-phase in keeping with multiple transfer, which it has been argued is enabled by certain syntactic elements acting as 'anchors' for the lower phase (Uriagereka 2009; Narita 2010).

The structure in (39) can be understood as containing any values held by functional heads in the interior of the DP, and would transfer information to C-I. Additionally, we might understand the nominal Mary as being indexed to its lexical root and hence C-I might call up idiosyncratic semantic content concerning the root at this point. Critically, there is no suggestion of rigidity at this point, and no thematic role assigned.

The next stage of the derivation involves the merging of the root √loves as part of the verbal projection, as illustrated in (40):

(40) [v*P [spec$v$* [v* loves [VP [V ~~loves~~ [DP Mary]]]]]]

Following this, a further DP containing the subject *John* is merged into the specifier of the v* shell:[162]

(41) [v*P [spec$v$* [DP John [NP ~~John~~]] [v* loves [VP [V [DP Mary]]]]]]

At this point the v* phase is complete and a standard iteration of Agree applies, which provides the DP *Mary* with accusative case, and following this we get Transfer. The formation of the thematic matrix now becomes clear as we have the interior of the v* phase complete with its thematic role sent to the C-I interface, and the agent of the matrix in v*'s extended projection. We can illustrate what C-I contains as follows:

(42) [DELETED ~~loves~~^{I} [PATIENT.RIGID MARY]]

The DP containing Mary can now be interpreted by C-I as being a rigid proper name in virtue of C-I receiving information regarding the content of the phase edge. Additionally, the argument matrix takes shape with the v* interior informing C-I as to the patient/theme of the clause being derived.

[162] It should be noted that the DP containing *John* goes through the same process as that containing *Mary*. It includes the merging of the root √John, the N-to-D movement of *John* into the phase edge, and an instance of Transfer. Interestingly, this seems to suggest that there are two derivations proceeding simultaneously, one that is deriving the v* shell and one deriving the DP placed in its specifier. The reason that these must be done separately is that the DP is merged as a phase itself already built. This leads to the conclusion that we might have simultaneous syntactic workspaces (for more on this see Krivochen 2013, 5-8).

Furthermore, the lexical root of *loves* may be accessed for its idiosyncratic semantic content.

The third and final stage in the completion of this sentence is the derivation of the C phase. At this point, no further lexical material is added to the syntactic component. The Agree operation activated by C provides the grammatical subject with nominative case and provides the verb with tense. Additionally, the C phase contains the wide range of functional heads detailed in §5.32, including at least Force, T, S_T, S_L, L_A, and L_P. These projections help complete the clause through valuing it relative to the speech-event and giving it illocutionary force:

(43) [CP [ForceP DEC[163] [LA LP [ST NOW [SL ABSENT[164] [TP [specT [DP John] [T PRES

[v*P [specv* [~~DP John~~] [v* loves [DP Mary]]]]]]]]]]]

In the T projection PRES stands for the fact that the tense projection is valued as being present tense. Furthermore, any operations of movement that were made in previous phases have been omitted to retain clarity, and we have only included the projections that contain lexical items or are unquestionably contributing to the expression's semantics. The transfer of C consists in two parts: first of all, the interior (TP) downwards is transferred thereby completing the information surrounding the thematic matrix of the verb as well as the fact that the grammatical subject is also a rigidly referential proper name. We can illustrate what C-I contains at this point as follows:

(44) [AGENT.RIGID John[I] [TRANSITIVE.PRESENT loves [PATIENT.RIGID Mary]]]

As we can see the whole thematic matrix is now present in C-I, both arguments are rigid, and tense has been assigned (although not yet relative to the speech-event). Finally, the C edge is transferred (in virtue of C being a matrix clause):

[163] This is meant to represent that the Force projection is valued as being declarative.
[164] We are assuming that neither John nor Mary are present in the utterance context, and we indicate that the clause is absent from the speech-event location.

(45) [FORCE.DECLARATIVE [LOGOPHORICAGENT.NO [LOGOPHORIC.PATIENT.NO [SPEECH-TIME.PRESENT [SPEECH-LOCATION.ABSENT [AGENT.RIGID John [TRANSITIVE.PRESENT loves [PATIENT.RIGID Mary]]]]]]]]]

The clausal structure of (44) is then valued relative to the speech-event that is being constructed, which values, for instance, the event relative to the speech-event location, tense relative to the speech-event time, the arguments relative to the speech-event participants, and finally provides the clause with declarative force (for an extensive discussion on how speech-event values interact with the clausal structure see Sigurðsson 2004a; 2004b; 2007). The structure present in C-I is thus complete in the sense that the speaker now has everything at her disposal to use the expression felicitously.

We can now briefly some up how grammatical structure and the C-I representations it produces inform general directions for use. To begin with, the two DPs John and Mary have the same grammatical topology. Each contains an instance of N-to-D movement that leaves the interior empty and edge filled. In alliance with the 'grammar-reference link' hypothesis from (33) the DPs must be interpreted as rigid proper names. The only difference between the two is whatever idiosyncratic information the two roots hold in LEX. The two DPs therefore, must be used and understood as rigidly referential. The grammatical structure of DPs therefore creates their general directions for use, and in the case of (37) the general directions for use are that the names be interpreted as rigid (with all the implications concerning trans-world identity that such an interpretation entails). Whenever an expression ζ has the grammatical configuration of these DPs it must be used rigidly.

The DPs are then situated with the *v** phase, which contributes to the general directions for using the expression by placing the arguments within a thematic matrix, thereby creating an event-like structure. The contribution of the *v** phase is found in the organisation of the arguments participation in the event being described. The general directions for using the expression come about through the grammatical configuration once more, which details the thematic roles of the two argument in the event. The name Mary must be used as the patient of the event and interpreted accordingly and the name John must be used as the agent of the event. The

grammatical configuration of *v** thus informs general directions for using the thematic matrix it captures.

Once we have the clause-like structure of *v** the derivation proceeds through the C phase. As we stated above, a lot of functional structure exists within C whose job it is to orientate the clause with respect to the speech-event, its participants, time, location, and it must provide it with force. The C phase contributes towards general directions for use in numerous ways. First of all, it is responsible for situating the clause in time through valuing T, and this is then valued with respect to the speech-event time S_T. The implications of this to how the expression can be used are obvious, it restricts the temporal aspect of the clause to whatever it is valued as. It can only be used to express a certain time-stamped proposition. Furthermore, the clause is situated relative to the speech-event's location S_L, including situating the clausal participants relative to the utterance context (as being either present or absent). Irrespective of whether spatial information is phonetically realised, the functional projection S_L restricts felicitous uses of it. The C phase also values the logophoric participants L_A and L_P and the clause can only be used in accordance with these values. It also marks the clauses force, and therefore restricts whether the expression can be used to make a statement, ask a question, give an order, etc. Overall, C has the role of turning a clause-like structure into something that can actually be used felicitously in a given speech-act. The values for the projections in C therefore directly contribute to general directions for using the syntactic object created.

At this point there is one more thing to consider with respect to general directions for use, which concerns the distinction between lexical and compositional semantics. The theory that we defend is one that states that compositional semantics is formed through grammatical structure, and the above is concerned with illustrating how that comes about with C, *v**, and D. However, grammar has no effect on the idiosyncratic descriptive information carried by lexical items. The reason that the grammatical theory of meaning should be favoured therefore is in its account of semantic composition, rather than lexical semantics. The explanatory advantage that the grammatical theory of meaning has is that it does not require additional machinery in C-I to capture the compositional linguistic meaning of an utterance. In conclusion, grammatical structure produces

general directions for use in C-I that can be equated with compositional semantics, but it does not explain how idiosyncratic information attached to lexical items contributes to these directions.

5.42

LINGUISTIC MEANING AND 'WHAT IS SAID'

We can now turn to analyse the grammatical theory of meaning's account of the two core parts of semantic theories that we discussed in §2: linguistic meaning and what is said. An account of how our theory interacts with these three aspects of language will enable us to locate the theory in opposition to both literalism and contextualism.

To begin with we can sketch out how the grammatical theory of meaning contributes towards the linguistic meaning of an expression. Let us repeat what we said about linguistic meaning in §2.1, 'the linguistic meaning of an expression is derived from the conventional meaning associated with a given expression-type. The linguistic meaning of ζ therefore is the meaning of a particular expression-type ζ. In virtue of this, the linguistic meaning of ζ can be given in isolation from a particular context of use, it is context-independent.' The linguistic meaning of an expression ζ therefore is an account of a particular type of expression that is explained through its conventional – and context-independent – meaning. In §4.16 and §4.24 we gave a critical analysis of how certain theories employ the notion of linguistic convention and suggested that such an account may derive from grammar (at least with respect to referential uses of descriptions). The idea presented there extends readily to all linguistic expressions. The linguistic conventions governing language use are derived from grammatical structure precisely because the grammatical structure provides general directions for use (which are the linguistic conventions of a language). We can state therefore that the linguistic meaning of an expression is produced through the grammatical structure that underpins it, which includes the information expressed in the syntactic configuration itself (the topology of the phases) as well as the various feature values carried by the projections.

The idea of linguistic meaning being presented is only minimally different to that described in §2.1. The only real difference is the idea that linguistic meaning is read off grammatical structure, which in turn underpins

linguistic convention, instead of semantic-types. Grammar provides general directions for use, and therefore a particular grammatical string ζ captures the linguistic meaning associated with the expression-type ζ. Once again, the issue of idiosyncratic descriptive meaning attached to lexical items rears its head again. In an instance of the lexicalisation of a root, where a particular phonetic label becomes learnt and placed in LEX, there will be a myriad of idiosyncratic pieces of information that are attached to it, and more pieces of information may be added over time. These pieces of idiosyncratic information play no role in grammar or in compositional semantics. There is no difference here with formal semantics. For instance, a type-based formal semantics does not pay any closer attention to idiosyncratic information than grammar. The composition of semantic-types, as exhibited in functionalism, is purely based on those types, rather than any descriptive information the lexical items, that those types are attached to, carry. The linguistic meaning of a fully-fledged sentential expression therefore is to be equated with its general directions for its use, which are in turn provided by the compositional semantics captured in grammar as well as the idiosyncratic information carried by certain lexical items (namely descriptive/open-class roots) present in the expression. Critically for our purposes, the linguistic meaning of the definite article is based in grammar, as it is a closed-class lexical item.

We can now turn to see how this grammatical account of linguistic meaning specifies what is said, and consequently truth-conditional content. In doing this we will contrast our theory with both literalism and contextualism, as well as all those theories of descriptions so far discussed. To begin with, we can repeat the definition of 'what is said' that we employed in §2.1, given an expression ζ, what a speaker says in using ζ is associated with the propositional content expressed by ζ, 'what is said' is the truth-conditional content of the utterance (Recanati 2004, 5), and in Hinzen's words "it is to take such propositions to form the contents of propositional attitudes; and to take them to be 'complete' in the sense that a truth-value can be attached to them in a context of use" (*forthcoming*, 4). For literalism, what is said is entirely dictated by linguistic meaning, whereas for contextualism what is said depends upon free contextual enrichment on the utterance. Alternatively, we will take our grammatical theory so far discussed and state that it fully specifies the compositional aspects of what is said.

There is a clear point of departure into the debate surrounding what is said that is to be found in the clausal domain of syntax, the C phase. We can begin by splitting CP up into its edge and interior, and following Sheehan & Hinzen we can state that the interior (TP downwards) 'constitutes the descriptive core of the proposition' and the edge 'serves to make the proposition 'refer'' (2011, 424). We might therefore understand the CP in a matrix clause as turning the 'descriptive core' of the clause towards the world, matrix CPs are therefore extensional (2011, 425). It is no surprise that this result emerges with matrix CPs when we consider the projections that CPs contains, including illocutionary force and speech-event features (Rizzi 1997; Sigurðsson 2004b; 2007). The role of a matrix is to transfer something to C-I that is amenable to being tested for truth against the world. The grammar of matrix CPs thus provides general directions for using the clausal structure below to make a judgement about the world, which can be tested against the extensions of the elements it contains. The question for what is said is whether what matrix CPs transfers to C-I is *fully* specified for truth-conditions, or whether the semantic or pragmatic component of language must embellish the syntactic object.

The argument for grammar fully specifying what is said will mirror what we have said about linguistic meaning, grammar fully specifies the compositional aspects of what is said, namely the structural aspects of truth-conditional content, but it does not have full control over idiosyncratic information. In a grammatical derivation particular lexical items will be merged, which means that we get a fully specified linguistic meaning in so far as those lexical items carry their descriptive content into C-I. However, as Borer notes, lexical roots are "creatures born of perception and conceptualization", not grammar (2005, 10-11). However, we retain the non-lexicocentric conception of compositional semantics by retaining the view that the semantic contribution of a lexical root to truth-conditional content is 'exo-skeletal'. It is dictated by the grammatical environment in which the root falls, as can be seen in the root √race in (4) and (5) (Borer 2005). To this end, Hinzen states that "modulo potential contextual influences on the *lexical* specifications of utterances (a domain where grammar is not in control)… grammar… not merely constrains but in fact *fully determines* the propositions expression, without enrichment by further elements, where these are not independently grammatically licensed…pervasive and uncontrollable influences of context on the lexical

specification of meaning in an utterance *will* occur; where grammar is not in control, context takes over" (*forthcoming*, 4; 26). Nevertheless, the claim is that grammar controls all of the compositional parts of meaning. We will now turn to explore this idea further.

To begin with, let us recall the manner in which literalism and contextualism relate linguistic meaning to what is said. Starting with the former, literalism defends the view that linguistic meaning produces, at least, a minimal proposition for any declarative sentence. For instance, the sentence in (46), repeated from §2.3, can be associated with the minimal proposition in (47):

(46) I've had breakfast.

(47) I've had breakfast *at least once in my entire life*.

The minimal proposition in (47) is understood by those defending literalism to constitute the smallest fully-specified set of truth-conditions for (46) (Borg 2004). Nevertheless, a standard felicitous use of (46) is not intended to express (47), but is instead almost universally employed in the communication of (48):

(48) I've had breakfast *this morning*.

The idea behind a minimal proposition is that (46)'s linguistic meaning can be expressed with (47) without reference to its use of a particular occasion, but when it is used the linguistic meaning of (46) demands saturation from the context. The idea is akin to that of a hidden indexical discussed with respect to Neale's theory of descriptions in §3.3. The linguistic meaning of (46) requires saturation from the context, but the role of context is not free but heavily conditioned. An utterance of (46) is typically associated with (48) because its linguistic meaning must be saturated by the context. In other words, we have a minimal proposition that fully specifies truth-conditional content, but in an instance of use the expression is accompanied by contextual coordinates demanded by its linguistic meaning. In other words, the linguistic meaning fully specifies what is said by demanding saturation (a form of indexicalism).

Nevertheless, as Hinzen points out, associating (46) with the minimal proposition in (47) is 'psychologically implausible', and more crucially it

fails to be captured by its 'linguistic form' (*forthcoming*, 5). It must be remembered that when we discuss what is said we are discussing something enabled by our species' linguistic endowment, we are discussing propositional structure, which is something that competent speakers can produce, interpret, and judge to hold true. We have propositional attitudes towards what is said in a given utterance, and we can have attitudes such as beliefs, hopes, and so on, that are dependent upon what is said. Therefore, what is said in a particular utterance is something captured in the psychological reality of having a linguistic mind. Consequently, it has to be psychologically plausible. The proposition in (47) is psychologically plausible, but not as minimal proposition expressed by (46). If we are to keep to the idea that grammar creates a 'skeleton of thought', then there is no time at which the additional material posited in the minimal proposition in (47) is constructed. There is nothing stopping (47) being derived, but it is not derived as part of (46).

Contextualism agrees that we cannot claim that (47) is a plausible minimal set of truth-conditions for (46). The conclusion contextualism reaches is that the linguistic meaning of (46) is insufficient for fully specifying truth-conditional content and what is said. To overcome this problem, certain theories endorse truth-conditional pragmatics. The idea here is that whilst the linguistic meaning of (46) fails to provide a fully specified set of truth-conditions, it is subsequently supplement by free contextual enrichment which is part of speaker's meaning and thus pragmatic (Recanati 1993; 2004; 2013; Bezuidenhout 1997; 2002). Through employing free contextual enrichment, contextualism takes what is said in (46) to be determined partially through its linguistic meaning and partially through further pragmatic enrichment.

The issue surrounding the truth-conditional content expressed in (46) is one concerning a distinct lack of phonetic material regarding the time at which the speaker claims to have had breakfast. As an alternative to both literalism and contextualism, we can consider whether grammar fully determines what is said. Hinzen claims that grammar constructs a 'deictic frame' that is complete in the sense of what is said, and facilitates successful communication. There is no need to add anything to it (hidden indexicals or truth-conditional pragmatics), as 'nothing is missing' (*forthcoming*, 18). Hinzen describes the completeness of grammar as follows:

> [j]ust as temporal reference to an event as taking place contemporaneously with the point of speech is not the same as describing it as taking place 'now', or deictic reference to me with 'I' is not the same as describing me as being 'me', spatial reference to an object or place relative to the location of speech is not the same as describing this place as falling under some lexical predicates such as 'in Palo Alto' or 'here'… The Here is established in relation to the speech act, as, when and where it takes place, and fixating spatial relation grammatically, without the help of additional descriptive predicates, and through the speech act itself, is different from a location saturating descriptive predicates specified in an utterance. (*forthcoming*, 17)

We need not add information in the form of a complete minimal proposition, nor do we need to supplement the linguistic meaning with truth-conditional pragmatics. The idea is derived from the concept of speech-event features, which we introduced earlier, from Sigurðsson (2004a; 2004b; 2007; 2009). [165] If we take any complete grammatical derivation, with a full matrix CP, then we will see that it syntactically encodes for the clause being understood relative to the speech-event taking place. To reiterate what we have said earlier, a matrix C, with fully specified speech-event features, places the clause captured in its interior within the event's location, time, and with respect to the speech participants.

To provide additional material in the way suggested by either literalism or contextualism will lead to "propositions misrepresenting the thoughts expressed in the original utterances as the thoughts expressed by lexically and grammatically different expressions" (*forthcoming*, 26). Grammatical structure, once enriched in the manner demanded by the speech-event projections discovered in syntactic cartography, contains all of the information required to give (46) a fully-specified truth conditional content relative to the context. For instance, consider (49):

(49) I am tired.

The proposition expressed by (49) might be paraphrased as 'the speaker is tired at the present moment'. How do we reach this through grammar

[165] For more on Sigurðsson's system in relation to alternative syntactic options see Krzek (2014).

alone without recourse to a minimal proposition and without recourse to truth-conditional pragmatics? This becomes clear once we consider the expression in relation to the values assigned to speech event features. To begin with, the clause is valued relative to S_L in the speech-event HERE (it is valued as being true in the present location of the speaker). Next it is valued relative to S_T in the speech-event NOW. Following this the first person indexical is valued relative to L_A as being the logophoric agent (Hinzen *forthcoming*; Sigurðsson 2004b; 2007). Finally, it is valued as expressing declarative force. There is nothing left to that it required to complete what is said, the grammar has already placed it within the interlocutors deictic frame and the utterance's speech-event. This is what we understand to be a fully grammatical account of what is said.

5.5

SUMMARY

We can conclude this chapter with a summary of the grammatical theory of meaning.

(50) The Grammatical Theory of Meaning

i. Grammar provides blueprint or skeleton for compositional semantics that we can associate with a 'skeleton of thought'. The semantic skeleton is achieved through the mechanics of the three phases: C, *v**, and D.

ii. The topology of D corresponds to a 'referential hierarchy' wherein arguments fall, the topology of *v** corresponds to thematic matrices wherein events are structured, and the topology of C produces a clausal structure fully-specified in relation to the speech-event.

iii. The grammatical structure of an expression ζ provides the speaker with general directions for using ζ.

iv. The linguistic meaning of an expression ζ can be directly read off its general directions for use.

v. The linguistic meaning, derived through grammar, is complete with respect to compositional aspects of truth-conditional content and what is said in an utterance of ζ.

vi. Contextual factors, not already determined syntactically, can only interfere with idiosyncratic information carried by lexical roots.

vii. From (*vi*.), whether or not definite descriptions are referential, quantificational, or ambiguous is therefore a matter for grammar to decide.

The grammatical theory of meaning thus stands opposed to literalism and its formulation in formal semantics, and contextualism with its employment of truth-conditional pragmatics. In virtue of defending a view of compositional semantics as being grounded in grammar, we therefore have a motivation for exploring such a grammatical account of the three ambiguity problems. Furthermore, this account will attempt to unify the problems raised against the Russellian QT (§3) and the two ATs (§4). We will now turn to provide such an account, and conclude with our solution to the genesis of the three ambiguity problems.

6

DEFINITE DESCRIPTIONS AND EXPANDING THE FORMS OF REFERENCE

The aim of this chapter is to extend our analysis in §5 to look at DPs in more detail, as well as the grammatical environments in which they can be placed. The work here will further the view that both referential and attributive uses of definite descriptions, and their associated linguistic conventions, have their origin in grammar. We will begin by expanding the forms of reference introduced in §2.4 in accordance with facts about DPs and their interaction with grammar more generally (§6.1). The idea here will be to develop a 'hierarchy of reference' in line with Longobardi's topological analysis of DPs (1994; 2005; Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014). The hierarchy will be seen as emerging through the grammar of DPs and the wider grammatical environments in which DPs are found.

We will pursue this line of inquiry through a discussion of deictic definite descriptions (§6.11), adjectival modification within DPs (§6.12), possessives (§6.13), and epithets (§6.14). In §6.2 we will employ our results in rejecting

the idea that the definite article is lexically ambiguous, which we will label an erroneous lexicocentric assumption, in favour of an 'exo-skeletal' view (Borer 2005). Following this, in §6.3 we will provide a final thought on how linguistic conventions surrounding definite descriptions arise. Finally, in §6.4 we will complete our thesis with our grammatical account of the genesis of the three ambiguity problems. We will discuss each of the CAP, GAP1, and GAP2 in turn and provide an account of them in terms of the GT. The conclusion of this chapter is that the three ambiguity problems in definite descriptions, their forms of reference, the linguistic conventions surrounding their uses, and finally their linguistic meaning and contribution to what is said, are all accounted for through the grammar of DPs in conjunction with the grammatical environments in which they can be placed.

6.1

EXPANDING THE FORMS OF REFERENCE

The central focus of this section will be to develop an expanded set of forms of reference, which are intended to track the subtle nuances and differences that grammar affords us in using language to refer. We can begin by reiterating what we said in §2.4. It was observed that if an expression ζ is taken to be referential, then ζ will receive the semantic-type <e>. Conversely, if an expression ζ it is taken to be quantificational, then ζ will receive the semantic-type <<e, t>, <<e, t>, t>>. In order to introduce the idea that there are levels of referential strength in arguments we dubbed these two types of expressions instances of 'strong' and 'weak' reference respectively. As was stated in §2.4, the conception of linguistic meaning espoused in formal semantics takes individual lexical items to exhibit fixed semantic-types, and restrictive ones at that. The two semantic-types outlined above exhaust the options available within the type-driven lexicocentric view of meaning (Martin & Hinzen 2014, 98). However, as we have illustrated in the case of proper names in §5.342, the referential function that lexical items exhibit is a direct consequence of the grammatical configurations in which they fall. For instance, we denied that the lexical root √Ronaldo should be assigned a semantic-type <e> and illustrated that its being referential (and rigidly referential) was parasitic an instance of N-to-D movement. When √Ronaldo failed to undergo N-to-D movement it could not be interpreted in the same way, it could not be

interpreted as being rigidly referential. The conclusion reached therefore is that grammar determines the referential status of arguments through a 'referential hierarchy', and that 'reference' is not a property held by an item in the lexicon.

In what follows we will develop an understanding on where definite descriptions fit on the referential hierarchy, and how their position on this hierarchy interacts with the grammatical environment in which they are found. The upshot of this will be to state that the definite article as a lexical item is not pre-destined to create either a referential or quantificational expression, but instead gathers its form of reference grammatically. In other words, we will reject the Russellian QT (§3) that the definite article creates a quantificational function as well as both Kaplan and Devitt's ATs (§4) that the definite article creates, at least in some cases, a referential function. It will be argued that if we are to apply a semantic-type to definite descriptions, then this must be done on a case-by-case basis after the expressions have been transferred from the syntactic component. The idea to be developed is similar to that of Borer, who claims that "it is the properties of the 'outside', which ultimately determine the overall 'shape' of what is within, rather than the other way around" (2005, 15). A lexical item's 'shape' (or analogously its semantic-type) is determined by the grammatical context it is in, it is determined through its 'exo-skeleton'. Through an expansion of the forms of reference and their grammar we will be able to better understand the contribution of definite descriptions to linguistic meaning and what is said.

The subsequent work will be dedicated to analysing various constructions containing definite descriptions that are brought up in the literature. The idea will be to develop and expand the forms of reference that standard semantic treatments admits of them, which we will take to correlate directly facts about grammar. As a background to this work we should remember that definite descriptions fall directly in the middle of the referential hierarchy. In §5.342 we described the referential hierarchy in DPs as one concerning the interaction between the phase edge and interior, and we stated that definite descriptions exhibit material in both. It will be illustrated that it is this fact that leads to the two ambiguous uses. Furthermore, we will show that when a definite description is felicitously understood as being referential it is because its interpretation is depending

upon the phase edge, and conversely when a definite description is felicitously understood as being attributive it is because its interpretation is depending upon the phase interior. We will also show that it is often the wider grammatical environment within which the DP is placed that determines which of the edge or interior is critical to the interpretation. Thus, we will attempt to illustrate that the various forms of reference exhibited in definite descriptions (from the very weak attributive readings to the strong deictic readings) are grounded in grammar.

6.11

DEICTIC DEFINITE DESCRIPTIONS

As a point of entry into our theory we will begin with an analysis of deictic uses of definite descriptions, which exhibit perhaps the strongest form of reference available to such expressions. Deictic uses of definite descriptions are the most commonly called upon examples of referential uses (as will be obvious from our work in §4). Such uses are often cited as clear examples of referential uses constituting instances of a linguistic convention. A deictic use of a definite description is one wherein the speaker employs the expression in order to make reference to a particular individual that is salient in the speech-act context. It is deictic in virtue of the fact that 'what is said' in an utterance contain a deictic element depends upon the context. Language is inherently deictic, that is, it is tied to our comportment towards the world in every instance of use. Language might be understood therefore as creating a 'deictic frame' (Sheehan & Hinzen 2013, 284). In using language there is a frame built between the speaker, her utterance, and the world (speech-act context). We will now look at how definite descriptions interact with this frame to produce their particular form of deictic reference.

Prior to delving into deictic definite descriptions it is worthwhile pointing out that deixis is not a property of lexical items, but is instead a property of grammatical configurations. For instance, it is not the case that a pronoun can be understood as being deictic as it sits in the lexicon. Instead it gathers this ability if and only if it is situated in an appropriate grammatical configuration (Sheehan & Hinzen 2013, 117).[166] If an argument is deictic,

[166] Through a discussion of romance clitics, Martin & Hinzen illustrate that pronouns derive their deictic status grammatically and it is not something that they are by-rights guaranteed

then it has a certain grammatical structure and is placed within a grammatical environment that engenders this reading. Our analysis of definite descriptions will proceed in this vein.

Deictic uses of definite descriptions are ubiquitous in language use. Consider (1) for instance, which will understand to be spoken in the presence of a contextually salient desk:

(1) The desk is covered with books.

A speaker may employ (1) in a situation where they have been presented with a study space, which happens to be in a state that renders it unfit for purpose. In such a scenario, we can state as an initial analysis that the definite description picks out the relevant table through interacting with the speaker's deictic frame in conjunction with the descriptive content contained in the NP. Uses such as (1) abound, and it is no surprise therefore that they are perhaps the keystone piece of evidence in the ambiguity theorists' arsenal. Should we conclude that the definite description in (1) is therefore inherently deictic? Does (1) indicate that the lexical entry for *the* should contain a semantic-type that captures this referential function? The answer to these questions is negative.

We can illustrate why this is the case by comparing (1) and (2):

(2) I hope the joiner builds the desk in mahogany.

Unlike (1), a felicitous use of (2) is not deictic and the definite description *the desk* does not pick out a contextually salient desk (even if there is one unique desk in the context). The definite description remains the same, and hence we shall assume that the DP it is contained within is the same also, but we nevertheless interpret its contribution to 'what is said' differently. In (1) 'what is said' concerns a particular contextually salient individual, whereas in (2) 'what is said' can be associated with a speaker's desire concerning an event in the future that involves the creation of an individual that exhibits the properties of being both a desk and being made out of mahogany. The definite description in (1) therefore exhibits a stronger form of reference than that in (2), as it refers to an already existing, contextually salient, individual, whereas (2) does not and cannot be felicitously used in

to achieve. According to them, "their interpretation is determined grammatically by how high they are located within the structure of the extended phase" (2014, 104).

this manner. We must therefore look beyond the lexical entry for *the* and perhaps beyond the grammar of DPs in order to account for the form of reference exhibited in deictic definite descriptions.

It now seems more appealing to state that the difference is one concerning the grammar of the two DPs in conjunction with the two respective grammatical environments in which they are placed. The latter therefore dictating that the same definite description *the desk* can in one environment elicit deictic reference and in another fail to do so. The subsequent analysis of this deictic uses will be based upon Sheehan & Hinzen's claim that it is "grammar-based means of referring" that "systematically establish relations of relative distance between the object of reference and the immediate features of the speech context", and therefore "characterize these forms of reference as 'deictic'" (2011, 406). In order for (1) to be deictic it therefore needs to meets the conditions placed upon expressions by grammar for being interpreted as such. We can begin with the claim that the grammar of (1) makes the relationship between the definite description and 'relative distance between the object of reference and the immediate features of the speech context' a close-knit one. Grammar therefore dictates that (1) is felicitous when used deictically and (2) is not. It encloses *the desk* in (1) in a deictic frame.

The first avenue to pursue is that the topology of DPs partially contributes toward situating the definite description in a deictic frame, and thus contributes to its role as a deictically referential expression. Let us reintroduce the dichotomy in DPs between the phasal edge, which is the locus of strong reference (including deictic reference), and a phasal interior, which is the locus of descriptive (lexical/idiosyncratic) information. We therefore have the following dichotomy:

(3) [EDGE deixis [INTERIOR descriptive material]]

The analysis in (3) can capture the DP in (1) as follows:

(4) [EDGE the [INTERIOR desk]]

We can begin to analyse (4) through determining what role it is that the determiner plays in the edge of (4), and whether this role alone is sufficient to account for the act of deictic reference in (1). Following what we said in §5.342 we can understand referential strength to be determined through

"the extent to which the NP restriction is active in a particular context" (Sheehan & Hinzen 2011, 417). As a predication, we can state that where a definite description is being used deictically this is because it is 'edge heavy', in such a case the edge of the phase is more fundamental to its interpretation than the interior.

In investigating this predicate we can begin through a comparative analysis of deictic definite descriptions with other available deictic forms of reference that language affords us, including pronouns and (complex) demonstratives. The first observation we can make is that more often than not a deictic definite description can be exchanged for a complex demonstrative or third person pronoun without loss of communicative efficacy:

(5) The striker is wasting opportunities.

(6) That striker is wasting opportunities.

(7) He is wasting opportunities.

The substitution of the definite description in (5) with the complex demonstrative in (6) retains the filled NP complement if it is to be felicitous, but retains the deictic reading. In (7) the third person pronoun can be substituted and, in virtue of the grammar of pronouns, forces NP to be empty, and we once again retain the deictic reading. The fact that each of (5) – (7) can be used to refer to a particular contextually salient individual might suggest that there is a strong relationship between definite descriptions, demonstratives, and pronouns. Ideas along such lines have been around since Postal (1966), and they have been defended numerous times in the literature (Heim 1988; Elbourne 2005; 2008; 2013; Schlenker 2005; Johnson 2011). Nevertheless, it is the case that there are distinctions between (5), (6), and (7) that are captured by the hierarchy of reference. Demonstratives for instance can, on occasion, appear bare, without a filled NP complement. The same does not hold of definite articles. Moving further up the scale, pronouns actually bar a filled NP complement and are ungrammatical with one. Demonstratives and pronouns are thus more 'edge heavy' than definite articles, but the fact that each of (5) – (7) can be used deictically could indicate that in (5) our interpretation rests more on the edge than the interior NP.

In the semantic literature, it has been argued that deictic uses of pronouns and demonstratives can be understood as free variables. The free variable that a deictic pronoun exhibits, for instance, is then bound through the context with respect to the φ-feature bundle that it contains (person, number, and gender). We might thereby understand the φ-features that a pronoun carries as its descriptive content. The free variable analysis straightforwardly extends to deictic definite descriptions once we tack on the NP restriction as part of the descriptive content. Through this analysis we can treat the subjects of both (5) and (7) as exhibiting the semantics of (5*) and (7*) respectively, where the free variable is valued with an appropriate contextually salient individual:

(5*) [x]*(φ-features, NP 'striker') is wasting opportunities.

(7*) [x]*(φ-features) is wasting opportunities.[167]

The star * in the superscript indicates that the individual that comes to be the value of the free variable *x* must satisfy the conditions placed in the brackets otherwise it is not felicitous.[168] The only distinction between the semantics of (5) and (7) therefore is that (5) contains additional descriptive material captured in the NP complement.

As already stated, the deictic uses of pronouns constitute the strongest form of reference that grammar creates, which is understood through grammatical complexity being derived in the DP's extended edge (Martin & Hinzen 2014, 115).[169] The efficacious substitution of *the striker* with *he* speaks to the idea that definite descriptions used referentially are in fact akin to pronominal expressions (or the opposite, Elbourne 2008, 10). Furthermore, there is significant support for the idea that demonstratives are also highly related to the pronominal system, as evidenced in the fact that many languages use them instead of third person pronouns (Lyons

[167] We use the star * as both an index and an indication that the utterance would be infelicitous if not valued relative to the content of the brackets. The use here is non-standard but it provides a neat way of capturing both pieces of information, that it is indexed, and that its felicitous use depends upon the content of the brackets.

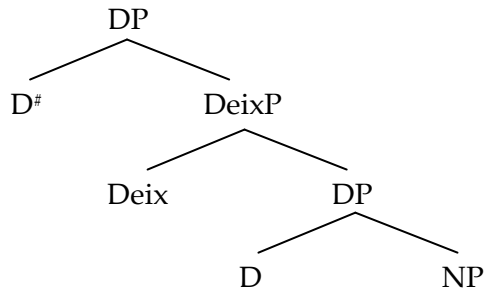
[168] In order for a free variable expression to be felicitous it is a requirement that all indexes provide an individual in the context (for more details on felicitous use see Heim 1988, 165).

[169] The strongest forms of reference are to be seen in personal pronouns. The types of third person pronouns that are interchangeable with definite descriptions come lower down the list, but nevertheless are edge heavy in virtue of having no material in the phasal interior (2014, 102).

2003, 145).[170] We want to understand how it is that all three appear to have similar interpretations in (5) – (7), one such reason is the interpretation of each is edge heavy.

To further this idea we need to briefly revisit the syntax of DPs. As we mentioned in §4.16, Martin & Hinzen lengthen the standard analysis of DP to include functional projections that extend its edge (2014, 110-111). The dichotomy captured in (3) still holds true, but in addition there is more complexity in the phase edge than just the functional projection associated with the phase head D. Martin & Hinzen extend the phase edge to include a deictic layer (DeixP) and a further determiner layer ($D^{\#}$) above D:[171]

(8)



The tree in (8) is simplified to exclude further functional projections (including NumP and *n*P) as well as any further adjectival or adverbial

[170] As Lyons notes, "It is very common for demonstratives to serve as third-person personal pronouns, and for languages to have no personal pronoun in the third person distinct from a demonstrative. Often it is a demonstrative unmarked for deixis that fills this function. In Latin, for example, the general demonstrative *is* is used, especially in non-nominative cases where there is more need for an overt form (Latin being null subject). Similarly in Finnish, the general demonstrative *se* also serves as inanimate third-person pronoun, and sometimes replaces *hän* 'he', 'she'. Sometimes one of the deictically marked demonstratives supplies the personal pronoun. Again in Latin, the demonstrative related to third person, *ille*, frequently occurs rather than *is*. In Turkish too it is the third (distal) term of the demonstrative system, *o*, that supplies the personal pronoun. Persian uses the distal form of a two-term system, *ān*, for the non-human pronoun. In Lezgian the medial demonstrative *am* (in a three-term distance system) is used. Often there is no particular member of the demonstrative system that has this function (presumably becoming unmarked for deixis in the process), and whatever deictic choices apply to the demonstratives apply equally to the personal pronoun" (2003, 145). Lyons notes that sometimes when the distal demonstrative is used it lacks its deictic marking but what he means here is what we have previously termed 'locational information'. The interesting part about this is that we suggested the same for the definite article in §4, where we observed Montagnais and certain dialects of Mandarin using the distal as an article.

[171] The notation of # next to the higher $D^{\#}$ projection is not taken from Martin & Hinzen, but we introduce it here in order to retain clarity.

parts of its cartography. What we see in (8) is an extension of the phase edge to include a deictic projection DeixP and a further D position. The extended edge can be understood in the same manner as the topology of DP in §5.342 with the strongest form of reference (personal reference) occupying just the D# position. The evidence for the extra projections comes from a wide variety of Romance clitics that occupy grammatical configurations depending upon the phrase/word that they replace, ranging from third person object reference in the lower D, to deictic reference in Deix, and finally to the strongest form of personal pronouns in the higher D (Martin & Hinzen 2014, 115).[172]

We can integrate the extended edge analysis with the referential hierarchy proposed in §5.342 (developed in reference to Longobardi 1994; 2005; Sheehan & Hinzen 2011; Martin & Hinzen 2014):

(9) a. Ronaldo plays [DP Ø [NP football]].

b. Ronaldo plays [DP Ø [AP amazing [NP football]]].

c. Ronaldo scored [DP a [NP goal]].

d. Ronaldo scored [DP an [AP amazing [NP goal]]].

e. Ronaldo scored [DP the [NP goal]].

f. Ronaldo scored [DP the [AP amazing [NP goal]]].

g. That is [DP Ronaldo [NP ~~Ronaldo~~]].

h. Ronaldo scored [DP that [NP (goal)]].

i. That is [DP him [NP Ø]].

j. [D#P I [DEIXP [DP Ø [NP Ø]]]] am tired.

[172] The idea of an extended edge is similar, but not identical, to that between a strong and predicative determiner phrase introduced by Zamparelli (2000, 15), where the edge of the former has been expanded to include DeixP and the higher DP.

Evidence for the extended edge comes from various sources, one such example is that of Norwegian, which exhibits multiple determiners that are spread across the two D projections:[173]

(10) [$D^{\#}P$ det [DEIXP ∂ [DP Ø [NP hus [AFFIX et]]]]]
That house-DEF

In Norwegian, a standard definite description occurs with a post-nominal affix that produces a definite reading (hus-*et*). However, as Leu notes, there is an option of a pre-nominal determiner, which then forces a deictic demonstrative reading as with *det hus-et*, *that house*, above (2008, 18). Leu argues that the pre-nominal determiner (*det*) indicates the presence of a morphologically null adjective whose role is to provide deixis, which we have indicated by ∂.[174]

The evidence for the presence of a deictic layer further abounds once we consider similar patterns in Swedish. For instance, the distinction between *that house* and *this house* in Swedish is produced through the two terms *där* and *här* (roughly *there* and *here*).[175] Therefore, we have the deictic layer, it would seem, explicitly realised:

(11) a. [$D^{\#}P$ det [DEIXP där [DP Ø [NP hus-et]]]]
That (there) house.DEF

[173] The referential options further divide in the case of personal pronouns. Martin & Hinzen observe that there are at least two further options for the phase edge, which are when just the higher D and Deix are filled, which can be seen in Latin dative personal pronouns, which exhibit deictic information. The example below captures person in the higher DP, deictic information in DEIXP, and location information in *bi*, which is moved into DEIXP:

(*i*). [$D^{\#}P$ t [DEIXP i-bi [DP Ø [~~BI~~]]]]
2^{nd}PERSON DEICTIC LOCATION

The second person pronoun *tibi* in latin therefore has no content in DP downwards, therefore forcing one of the strongest referential elements of language, person reference. The distinction between the first/second pronouns and third ones is that the latter contain a valued gender feature, which Martin & Hinzen posit to be valued lower in the overall DP structure than person. Hence, we get the fact that first/second person pronouns exhibit the strongest, most deictic, form of reference (2014).

[174] Interestingly, there are effects observed in language acquisition. According to Anderssen, Norwegian children acquire the post-nominal determiner much earlier than the pre-nominal one, which may be a reflex of the fact that the pre-nominal determiner is more grammatically complex (2007).

[175] Thanks to Alex Wilson for help with the Swedish examples.

b. [$D^{\#}P$ det [DEIXP här [DP Ø [NP hus-et]]]]
This (here) house.DEF

The expression captured in (10) is understood as a deictic demonstrative expression. The form of reference it exhibits includes explicit marking for deixis (in DeixP) in conjunction with the descriptive content of *hus*. The Swedish examples in (11) illustrate explicit deictic marking for location, which determines their respective interpretation as *that house* and *this house*. All of this defends the view argued for in §4.24 that we can understand the definite article as a distal demonstrative bleached of its locational information. In virtue of this, is it correct to state that the definite article has had its deictic information bleached?

The answer to this above can come through a comparative analysis of (1) with the clearly existential readings of (12) and (13):

(12) A desk is covered with books.

(13) Some desk is covered with books.

The two examples above fail to exhibit deictic reference, and this is because they fail to provide referential specificity and 'definiteness'. Whilst it may be true that the deictic definite description in (1) does not explicitly code for locational, or deictic, information (unlike a demonstrative equivalent), the fact that it is capable of substitution with a complex demonstrative but not an indefinite or existential construction as in (12) and (13) is telling.

The distinction between (1) and (12) is one concerning the difference between strong/weak determiners and the way they organize the interactions between the phasal edge and interior. An indefinite existential such as *a table* does not activate the deictic layer and its interpretation is thus heavily reliant on its nominal complement (just as one would expect with a quantificational expression). However, strong determiners do interact with the deictic layer and hence we get the wide-scope reading most naturally with (1), and the subsequent deictic use (Martin & Hinzen 2014, 98).

It is therefore tempting to interpret the underlying grammatical structure of a deictic definite description as follows:

(14) [$D^{\#}P$ Ø [DEIXP ∋ [DP the [NP desk]]]].

The idea behind (14) is that we have the DP containing the phonetic material and as expected D♯P is null, but the DeixP phrase now contains a phonetically null but nevertheless active element ∋ that restricts the use and interpretation to being deictic (whilst nevertheless failing to provide direct locational information). We nevertheless need to account for the distinction between (1) and (2). The following is such an account.

When placed in an appropriate grammatical environment, the silent deictic element in (14) becomes activated and contributes to the expression's linguistic meaning. In a suitable environment *e* the silent deictic element ∋ becomes capable of linking with the speech-event projections in C (Sigurðsson 2004b; 2007), and therefore forces an edge heavy interpretation and we get a deictic reading. The speech-event projections can be associated with syntax's contribution to our 'deictic frame', and hence is naturally extended to contributing to deictic reference.[176] A definite description that is capable of linking with the speech-event features in such a way will become understood relative to the speech-event location, speech-event time, and logophoric agent and patient. The deictic definite description in (1) is therefore understood as present in the speech-event location (the context), taking part in an event at the present time relative to the speech-event, and as distinct from the logophoric agent and patient. Sigurðsson also claims that the thematic roles assigned to arguments are tied to the 'speech-participants' of the speech-event as a result of EPP (extended projection principle), which drags subjects into SpecTP (2007, 145-146). The form of reference exhibited in deictic uses of definite descriptions is thus mediated by the grammar of the whole clausal structure, stretching all the way up into C.

Through this analysis we can modify the free variable idea of deictic definite descriptions to include this deictic element (keeping in mind that it is only active in particular grammatical environments):

(15) [x*(∋, φ-features, NP 'desk')] is covered with books.

The idea behind (15) is that it captures the fact that the referent must be a contextually salient individual, as demanded by the deictic element ∋. The

[176] This is further attested to by the fact that pronominal reference is only fully established at the C level, wherein pronouns are valued relative to the projections standing for logophoric agent and patient (Sigurðsson 2004b).

contextually salient individual must also satisfy the φ-features the descriptive content of the NP. The result we get from this analysis is that the interpretation of the definite description relies on both the edge and interior, as predicated by the topology of DPs. However, in line with our predication above the interpretation is edge heavy in virtue of a deictic element being in an appropriate grammatical environment that links up with the projections concerning the speech-event, which in turn dictate the role of the expression in the deictic frame. It is because of this that both (6) and (7) can be used interchangeably with (5) without loss of communicative efficacy. Deictic definite descriptions are thus edge heavy, whilst partially mediated by the descriptive content in the NP interior. We have no need to commit to the definite article having a referential function, nor do we have to commit to definite descriptions as a whole having the semantic-type <e>, in contrast the form of reference that definite descriptions exhibit is determined grammatically, and one such form is that of deictic reference. The analysis brings deictic uses of definite descriptions in line with third person pronouns and deictic demonstratives, which are both edge heavy, and distinguishes them from quantifier phrases.

We can now turn to give an account of why the definite description in (2) fails to get a deictic reading whilst, on the face of it, being identical with that employed in (1). The first thing to note is that it is not enough to have a definite description that is, in principle, capable of being used deictically, it must to occur in the appropriate grammatical environment for this interpretation to emerge. The definite description in (1) therefore has its deictic layer activated in virtue of being in such an environment whereas (2) does not.

To give an idea of an example where the deictic layer is not activated we can consider an example from the Catalan system of clitics. For instance, some definite descriptions are amenable to being substituted for a case-neutral and φ-feature bleached clitic *ho*. According to Martin & Hinzen, the sentence in (16a) that contains a definite description in predicative position can be replaced with the clitic version in (16b) and remains perfectly felicitous (2014, 104):

(16) a. En Pere és el porter.
The Peter is the porter.

b.	En Pere	ho	/ *el	és
	The Peter	NEUT	/ *ACC(φ)	is
	Peter is	(the porter)		

The explanation of (16) is that the definite description in (16a) is acting purely predicatively, which is illustrated by the fact that the clitic in (16b) does not contain structural case (or a thematic role) and does not contain a valued set of φ-features. In comparison, were the definite description *el porter* in the grammatical subject position it could not be substituted for the clitic as the description would be case marked (and have the thematic role of agent) and carry a valued set of φ-features. In other words, the grammatical environment that *el porter* is in in (16b) determines that it is interpreted predicatively, as opposed to anything particular about the definite description itself.

We can apply this idea to (1) and (2). The first thing we can observe is that the definite description in (1) is in the grammatical subject position of the matrix clause, whereas the definite description in (2) is in the grammatical object position of an embedded clause. The two grammatical environments have effects on how the definite descriptions are understood relative to the speech-event that actually takes place. To begin with we can separate the sentences up as follows (taking SE_F to stand for the group of speech-event features):

(1*) [$_{CP}$ SE_{F1} [$_{TP}$ the desk [$_{v*P}$ is covered with books]]]

(2*) [$_{CP}$ SE_{F1} [$_{TP}$ I [$_{v*P}$ hope [$_{CP}$ SE_{F2} ∅ [$_{TP}$ the joiner [$_{v*P}$ builds the desk in mahogany]]]]]]

The speech-event features in the matrix CP will relate to the definite descriptions in distinct ways. Let us begin with tense. According to Sigurðsson, the embedded clause's S_{T2} projection (part of the bundle we are calling $SE_{F2)}$ would be valued as future, whereas the S_{T1} is valued as the speech-event NOW (2004b, 25).[177] The two thereby contrast in tense, meaning that the embedded clause is understood as providing an event

[177] It would match with the grammatical tense that is understood to be settled at the TP level, which is valued as being [+ future] (Sigurðsson 2004b, 25). The matrix C's ST projection can be understood as always the speech now, which contributes to the fact that language is always involved in the present deictic frame, situating information relative to it.

that is in the future relative to the speech-event time. Whereas, the tense of (1*) is present and valued as such relative to the speech-event NOW. The definite description in (2*) is therefore not to be understood as member of an event structure taking place in the speech-event NOW. A similar phenomenon exists with respect to the embedded clause's location. Its S_{L2} projection is valued distinctly from S_{L1}, thereby stating that the event captured in the embedded clause is not part of the speech-event HERE. The converse is true of (1*). Therefore (1), and not (2), is capturing an event in the HERE and NOW. It is for such reasons that (1) enables the deictic layer of definite description, whereas (2) does not as the event described in the embedded clause of (2) is not understood as taking placed in the speech-event's HERE and NOW. The two grammatical environments that the definite description is placed within force distinct forms of reference to emerge relative to the speech-event.[178]

The account of deictic definite descriptions detailed above falls in line with the fact that language is engaged with the world, and how this is mediated through syntax (as opposed to semantics or pragmatics). This engagement is neatly captured by Hinzen, who states that:

> [t]he Here and Now of speech are intrinsic or 'inalienable' aspects of it… an utterance is a physical event that takes place in space and time, and ipso facto it will, as witnessed online, have specific temporal and spatial coordinates… Whatever other times and places are referenced in an utterance, in short, they are determined in relation to the Here and Now of speech. (Hinzen *forthcoming*, 10)

Therefore, the grammatical environment in which the definite description in (1) falls is part of the HERE and NOW exhibited in the speech-event, whereas the event contains the definite description in (2) is displaced from the speech-event HERE and NOW.[179] It is this, we content, that explains the deictic uses of definite descriptions as a form of reference, and as a form of

[178] The syntactic work surrounding the interaction of the speech-event features, grammatical features, and event features, are highly complex. We make use only of a restricted and simplified version of them, but we maintain that what has been used is in principle readily extended to the more thoroughgoing analysis provided in Sigurðsson (2004b; 2009).

[179] Sigurðsson takes the interaction of the speech-event projections with the rest of a clause to explain "the displacement property of language, that is, the property that makes it possible for humans (as opposed to most or all non-human animals) to communicate about events that are displaced, not present in the speech event" (2004b, 7).

reference not captured in a type-based semantics such as that in §2.2. We thereby expand the forms of reference details in §2.4.

6.12

ADJECTIVAL MODIFICATION

The second form of reference that we will now analyse is captured in certain instances of adjectival modification in DPs. It is clear that adjectival modification embellishes the descriptive content of a definite description (as a working assumption we will understand this as filling the interior), but it can also help in the disambiguation of a reference thereby enabling a form of reference that we will term 'contrastive'.

In the following we will discuss a range of different phenomena that can be labelled as DP internal adjectival modification, but let us begin with some interesting results that emerge cross-linguistically. To begin with, let us return to the Norwegian data, wherein adjectival modification within a DP can further endorse the theory being developed that the edge/interior dichotomy is responsible for the forms of reference available in natural language. For example, as we stated previously in our analysis of (10) the expression *hus-et* equates to *the house* and the expression *det hus-et* equates to *that house*, however, once we get adjectival modification an interesting result arises:

(17)	det	svarte	hus-et
	the/that	black	house-DEF

The expression in (17) contains explicit adjectival modification exhibited in *svarte* (black), unlike (10) the adjectival modification enables the expression be understood as either a definite description or a demonstrative description, as either *the black house* or *that black house*. The first observation we can make about (17) is that the adjective, which is phonetically realised in DeixP, enables the definite description reading in addition to the demonstrative one. Leu states that the adjective contributes 'deicticity' to the expression (2008, 18). In the definite description reading this is the only deictic information carried by the expression, whereas, in the demonstrative reading we get the silent locational information as well (2008, 18). The point to make is that the two readings are both edge heavy. The adjectival modification and resultant determiner spread take place in

the phase edge. It is therefore no surprise that we get a strong deictic reading of the definite description, a strong form of reference. Furthermore, the idea that the definite article is a distal demonstrative bleached of locational information is further defended.

Another interesting piece of cross-linguistic data comes from adjectival modification in Greek. In Greek certain instances of adjectival modification in definite descriptions trigger determiner spread, with corresponding interpretive effects. The option of determiner spread is enabled when an adjective is capable of forcing a contrastive reading. The following two sentences illustrate the phenomenon (Kolliakou 2004; Alexiadou 2014, 20):

(18) o diefthindis ipe oti **i** kali erevnites tha apolithun.
the director said that **the** efficient researchers will be fired.

(19) o diefthindis ipe oti **i** kali **i** erevnites tha apolithun.
the director said that **the** efficient **the** researchers will be fired.

The sentence in (18) is ambiguous between two readings: the first understands the efficient researchers to be part of a wider group of dismissals and the second contrasts them with other employees stating that only the efficient researchers will be fired. Conversely, (19) has only one reading, which is the second contrastive reading (2014, 20). We therefore have a difference in the form of reference exhibited in the two definite descriptions, which is a direct result of the grammar of determiner spread.

The phenomenon of determiner spread in Greek coincides with a distinction between definite descriptions that introduce novel referents and those that pick out familiar referents (salient in the context/discourse). Drawing on work by Heim (1988), Alexiadou argues that the distinction between (18) and (19) mirrors one between (20) and (21) respectively:

(20) John read a book about Pirlo and wrote to the author.

(21) John read a book about Pirlo and wrote to him.

In (20) we understand John as writing to the author of the book, who was not previously introduced (although assumed to exist), and the definite description *the author* therefore introduces a novel referent. In (21) however, we understand John as writing to Pirlo, and the pronoun *him* is thus co-referential view Pirlo, it picks out a previously introduced referent. The

single vs. determiner spread constructions in Greek are said to follow the same pattern. Determiner spread constructions depend upon the referent being salient/familiar (2014, 22).[180] As Alexopoulou & Kolliakou note, determiner spread constructions are "associated with contextual constraints that go beyond the uniqueness presupposition of standard definites" and "require their referential index to be anchored to an entity that forms a proper subset of some previously introduced set" (2002, 216). The result of this is further evidence for the idea that if a definite description is edge heavy, then it exhibits a strong form of reference. In the case of Greek determiner spread, the edge heavy grammar produces contrastive reference to a particular familiar individual.

The form of reference exhibited in determiner spread in Greek produces contrastive reference to a particular familiar individual, which means that certain instances of adjectival modification in DPs fail to create poly-definiteness. An example can be seen in (22), where determiner spread is not licensed:

(22) *o platis o Irinikos
*the wide the Pacific

In (22) determiner spread is banned due to a failure to produce a 'restrictive reading' (Alexiadou 2014, 20).[181] If there were two Pacific oceans, one wide and one narrow, then the determiner spread would be enabled. It is clear that once again grammar enables a variation in referential strength and produces a wide range of forms of reference.

We can now turn to briefly analyse adjectival modification in English. To begin, let us consider the two sentences in (23) and (24) and assume them to be uttered in a context where there is a single desk (which happens to be both large and mahogany):

[180] It is an additional point in favour of this idea that the same results are observed with instances of clitic doubling, which explains 'novel definite cannot undergo clitic doubling' (Alexiadou 2014, 22-25).

[181] It is worthwhile noting further that ordinarily when we have a felicitous determiner spread the adjectival phrase headed by a determiner becomes focused. It has undergone movement to a focus projection (Alexiadou 2014, 38). If, on the other hand, the other determiner phrase appears first, then they suggest this is the result of it undergoing movement to SpecD (2014, 38). In each instance, we get results where the edge is employed thus suggesting further that these readings a referential in virtue of the edge being heavy in the interpretation.

(23) The desk is covered with books.

(24) #The large mahogany desk is covered with books.

The two sentences in (23) and (24) have distinct interpretations, with the latter providing extra, potentially disambiguating, descriptive content. With (24) we have indicated that it could well be marked in virtue of the context providing only one salient individual. In the situation described, the definite descriptions are deictic, in the sense outlined in §6.11 above, and hence their interpretation is edge heavy. In virtue of this, the interior heavy definite description in (24) becomes less felicitous. The descriptive content of (24) is akin to linguistic static and does not contribute to the speech-act. However, in a situation wherein there are multiple desks we begin to favour (24) in virtue of its ability to disambiguate. In this situation we might understand the form of reference exhibited in (24) as creating a fall-back option, meaning it relies on the interior in order to get the act of deictic reference completed.

Following our analysis of adjectival modification above, we can further extend the forms of reference that grammar enables with arguments. First of all, we can extend it to capture the grammatical phenomenon of determiner spread in various languages, where the form of reference created is contrastive interacts with a familiar referent. A theory of descriptions must account for such things as determiner spread if it is to become integrated into a universal linguistic theory. Therefore, we must include the forms of reference exhibited in determiner spread as part of our theory. In addition to this, a further form of reference can be exhibited in English when adjectival modification provides a disambiguating function. The form of reference exhibited in such instances is still contrastive, and thus we can understand adjectival modification as exhibit in Greek and English as related. We also see once again that the interpretation of a definite description is partially constituted by the topology of DPs and the fact that they involve material in both the edge and interior. Finally, we should note that the DPs containing adjectival modification are sensitive to the grammatical environment in which they are placed, with (24) forcing a contrastive deictic reading through being valued directly in relation to the speech-event HERE and NOW.

6.13

POSSESSIVES

The next form of reference we will consider is that concerning possessive constructions. We will observe that possessive constructions do not have a single form of reference, but actually replicate much of the referential hierarchy detailed in DPs topology. It will be argued that this is the result of possessives containing two independent DPs, one for the possessor and one for the possessee. We will show that it is the topology of the possessor DP that dictates the form of reference exhibited.

Possessive constructions have been brought up numerous times in the descriptions literature to serve distinct theories, in fact the two expressions that initiated the ambiguity debate were both possessives, *her husband is kind to her* (Linsky 1963), and *Smith's murderer is insane* (Donnellan 1966). Some possessive constructions appear to support a QT and others appear to support an AT or RT. We will argue that a full account of possessive as a general form of construction supports a GT. For example, (25) below is often used to defend a Russellian theory of descriptions:

(25) The mother of every child was angry.

It is obvious that the truth of (25) does not depend upon a particular individual but instead is understood to predicate 'being angry' of a set of mothers each of which has a child picked out in turn through the quantifier phrase *every child* (together with the domain restriction). We therefore get a natural attributive reading and a weak form of reference, quantificational reference. The reason why (25) suits a Russellian analysis is that a strong referential reading is highly marked, if it is possible at all. The referential reading becomes even more marked once the quantifier phrase is placed at the start and we get cliticization:

(26) Every child's mother is angry

The quantificational reading of (26) reigns supreme and it is therefore tempting to treat this as good evidence for a QT.

Nevertheless, there is nothing special about possessive constructions that render them more favourable to a Russellian analysis. Consider (27) for instance:

(27) Smith's murderer is insane.

It is readily accepted in the literature that (27) can be read as exhibiting a stronger form of reference than (26), and can be used to refer to a particular individual, Jones for example. The difference between (26) and (27) leads to the following question, what is it that is responsible for the clear attributive reading of (26), which is lacking in (27)? And, vice versa, what is it that is responsible for the clear referential reading of (26), which is lacking in (27)? A clear difference arises when we look at the possessives' structure. The possessor DP has a different grammar in each case.

We can begin our grammatical analysis by looking at the possessor's DP in each case:

(28) [DP the [NP mother [of [DP every [NP child]]]]] is angry.

(29) [DP the [NP murderer [of [DP Smith [NP ~~Smith~~]]]]] is insane.

The syntactic structure of (28) and (29) therefore consists in two full DP layers. The lower DP contains the possessor and the higher DP contains the possessee. It is worth nothing that it is the overall structure (the larger DP shell) that would be case marked and receive a thematic role. As far as the wider expression is concerned the wider DP shell acts as a single unit. Additionally, there is no need to commit to stating exactly what grammatical category the possessive *of* or its clitic counterpart *'s* occupies, nothing in our analysis will depend upon this.[182] As we can see, the lower DP could function as an argument on its own and hence we can consider it a proper DP containing all the relevant projections.

Following our topology of DPs in §5.342 we can analyse the lower DP in (29) as containing rigid proper name. In virtue of this, we can state that the root √Smith had undergone N-D movement. The presence of an N-D chain in (29) is illustrated in the interpretive differences that we observe between *Smith* in (29) and *Ronaldo* in (30):

(30) The shot power of the English Ronaldo is astounding.

[182] The embedding of DPs is not a new observation, and perhaps indicates a further instance of DPs reflecting properties of CPs, which likewise embed (an idea pursued at length by Abney 1989).

And:

(30*) The English Ronaldo's shot power is astounding.

The root √Ronaldo in (30) is more than capable of undergoing N-D movement, but does not. Instead it remains in N. We therefore do not understand the possessor DP in (30) as picking out Ronaldo but instead as picking out the individual that satisfies the definite description *the English Ronaldo*. The interpretive difference between *Smith* and *Ronaldo* in these examples is therefore a direct result of the underlying grammar of the DP that they are in.[183]

The facts concerning the lower DP form an interesting prediction, the overall referential strength of a possessive description and by extension the form of reference it expresses will be directly affected by the grammatical configuration present in the possessor DP. The prediction is exactly what we would expect in defending an exo-skeletal approach to the forms of reference exhibited in definite descriptions, and it provides further evidence against a lexicalist account of the ambiguity problems. If the possessor DP contains a quantifier phrase (existential, universal, indefinite, or even a bare nominal), then the overall possessive construction will reflect this, create a weak attributive form of reference. However, if the possessor DP is headed by a name that has undergone N-D movement, then the possessive construction will correlate with a strong form of reference. The distinction between (25) and (27) is therefore explained by the grammatical configuration of the possessor DP.

The theory being developed provides us with the following predication. If the form of reference exhibited by the possessive construction reflects the form of reference exhibited by the possessor DP, then we should see an increase in referential strength exhibited by the possessive in line with an increase in the possessor DP. The predication is made through the 'grammar-reference link' hypothesis. In other words, an increase in grammatical complexity in the possessor DP will correspond to the overall possessive position on the referential hierarchy, with quantificational

[183] We have been taking the lower DP to be a full DP projection, however we leave open the possibility that, in virtue of being an embedded DP, it lacks the extended edge captured in DeixP and D♯P.

readings on one side and deictic personal readings on the other. Indeed this is exactly what happens.

Possessive constructions exhibit a progression through the referential hierarchy in tandem with the progression exhibited in the possessor DP. For instance, when we use a complex demonstrative as the possessor DP we consequently force a deictic form of reference for the overall possessive (the interpretation thus becomes edge heavy, just as we observe with demonstrative DPs more generally):

(31) The brother of that guy is a professional footballer.

(31*) That guy's brother is a professional footballer.

Nevertheless, we do not get the option of dropping the descriptive NP complement entirely, which is illustrated by the ungrammaticality of (32):

(32) *That's brother is a professional footballer.
INTENDED: That guy's brother is a professional footballer

Some descriptive content is therefore required in a possessive when using a demonstrative, but this does not interfere with the fact it produces a strong referential reading.

Interestingly, once we take the step to pronominal expressions acting as the possessors the standard definite description translation becomes severely marked:

(33) #The brother of him is a professional footballer.

However, its standard possessive structure in (34) is perfectly felicitous, deictic, and edge heavy:

(34) His brother is a professional footballer.

The referential strength once again increases as the advancement through the referential hierarchy becomes transparent. Moving further up the hierarchy, once we drop the gender feature, as in first and second person pronouns, we get the strongest form of reference available for possessives:

(35) Your brother is a professional footballer.

(36) My brother is a professional footballer.

In each of (34) – (36) the possessive clitic is now morphologically marked as part of the pronominal expression acting as the possessor.[184] We can see that the increase in grammatical complexity of the possessor DP and the corresponding development through the referential hierarchy has direct effects on the overall possessive construction.

As the 'grammar-reference link' would predict, possessive structures that contain a possessor DP formed of a definite description fall directly in the middle of the referential hierarchy. For instance, (37) and (37*) are seemingly ambiguous:

(37) The manager of the team is responsible for tactics.

(37*) The team's manager is responsible for tactics.

The two readings available to (37) and (37*) are as follows: the first reading interprets the speaker as stating a general trait concerning the role of a manager in tactical organization, and the second states of a particular individual that she/he is responsible for the tactics of a particular team. On the surface it seems as if the possessive construction is ambiguous. Its place on the referential hierarchy is thus between (38) and (39):

(38) A team's manager is responsible for tactics.[185]

(39) That team's manager is responsible for tactics.

The indefinite possessive structure receives a weak referential interpretation and is thereby unspecific, whereas the demonstrative possessive forces a strong referential reading picking out a particular salient individual that satisfies the descriptive content 'manager'.

We might employ the concept of speech-event projections to deal with and eradicate the ambiguity in (37) and (37*). For instance, as we have argued

[184] It is very interesting that once we move beyond demonstratives in the referential hierarchy we can no longer felicitously paraphrase the possessives in the form *the F of G*. Instead, when pronouns enter the mix, their referential properties (that derive from grammatical complexity present in the DP edge) stop their being subsumed under a *the F of G* structure.

[185] The example in (38) is an instance of what Poesio terms a possessive weak definite (1994). It is interesting to note that it has been argued before that the possessive weak definite reading may be the result of the original definite descriptions *the manager of a team* falling in a particular grammatical environment (for more on his idea see Barker 2003, 90).

above §6.11, all clauses are valued relative to the speech-event location, time, and logophoric agent and patient. The two readings available to (37) would therefore be determined by the way the clause was valued in respect to the speech-event HERE and NOW. The strong reference reading would be understood to pick out an individual that was in the HERE and NOW of the speech-event, whereas the weak reference reading would not. The important point to note is that the availability of these two readings is not determined by the lexical entry for the definite article, but is instead the result of the topology of DPs and the place on the referential hierarchy that definite description occupy. Once again, the ambiguity finds its source in grammar.

We can conclude this analysis of possessive constructions by stating that the forms of reference they exhibit are vast and are a direct result of the grammar of the possessor's DP. In other words, examples such as (25) do not act as evidence for the Russellian analysis (QT), and examples such as (27) do not act as evidence for an ambiguity, or referential, thesis (AT/RT). Instead, both of the examples, and all the further ones offered above, speak to an exo-skeletal account of the semantics, and referential strength, of possessive constructions and definite descriptions more generally. The grammar of the possessor DP falls in the topology described in §5.342, which in turn forces the form of reference that the possessive construction exhibits, and that form of reference in turn is dependent upon the grammatical environment in which the possessive falls. The form of reference exhibited in any possessive construction is therefore explained thoroughly by grammar.

6.14

EPITHETS

We will now further our idea of there being multiple forms of reference for definite descriptions through a discussion of epithets and pronouns. The former are most often realized as definite descriptions and the latter are often considered a form of reduced definite description. For instance, definite descriptions and pronouns are often interchangeable:

(40) a. The manager replaced the striker.

b. He replaced the striker.

The same phenomenon applies to epithet constructions as well, where the definite description in (41a) and pronoun in (39b) are co-referential with John:

(41) a. John is such a bad driver that the idiot will get himself killed.

b. John is such a bad driver that he will get himself killed.

It is often thought that the many instances where definite descriptions are interchangeable with third person pronouns indicate a strong relationship, which might be characterized in the claims that the latter are minimal definite descriptions. We will now look to see to what extent this relationship holds, and whether it can tell us anything useful about the forms of reference available to definite descriptions.

Let us begin our analysis with (41). The first thing to note about (41) is that when we replace the epithet with certain other definite descriptions, or indeed demonstrative descriptions, the co-referential reading becomes harder to grasp. If we do, then the expression becomes marked, at the very least. For instance, a felicitous reading of either (42) or (43) where we intend a co-referential interpretation becomes marked (using indexes to illustrate the terms that are meant to be co-referential):

(42) #[John]$_1$ is such a bad driver that [the man]$_1$ will get himself killed.

(43) #[John]$_1$ is such a bad driver (that) [that man]$_1$ will get himself killed.

Whilst both (42) and (43) are not necessarily banned from having the co-referential reading, it is certainly less natural, which is especially clear in (43). According to Schlenker, the reason for this concerns the nature of the NP complement to the article. Standardly, (42) struggles to get the co-extensional reading in virtue of the fact that it would be understood to violate condition C of binding theory (2005, 386).[186] The reason that (41) is felicitous as having a co-referential reading is arguably that the description contains an 'expressive' component, that in the case of epithets "specify the speaker's negative attitude towards the denotation" (2005, 386). Once that

[186] Condition C states that a referential expression (for our purposes we can include proper names, demonstratives, non-anaphoric pronouns, and definite descriptions) cannot be bound by an element acting as an antecedent to it, which contains it within its c-command domain.

expressive content is dropped, as in (42), the co-referential reading is harder to grasp.

Schlenker proposes that we can account for the differences between (41a) and (42) through reference to the NP complement of the determiner. The idea is that a use of (41) is felicitous through the fact that the descriptive content "serves to express the speaker's attitude towards the denotation", where (42) is not as it fails to do this. Accordingly, Schlenker proposes an idea which he terms 'minimize restrictors' whereby definite descriptions should be felicitous only when the NP restriction they contain does not add superfluous descriptive content and is doing "more than merely helping fix the referent" (Johnson 2011, 9). Hence, the epithet in (41) is felicitous as it contains expressive content capturing the speakers attitude towards the referent, however (42) is less felicitous in virtue of containing descriptive content that fails to add anything to the denotation (assuming the gendered role of the name John). The role of grammar seems to be minimal in this instance as what we are discussing is the role of the lexical/idiosyncratic information in the definite description, which we argued in §5.4 is immune from grammatical influence. However, grammar does have a role, and it is illustrated in the distinction between (41) and (43).

The first thing we can note is the main distinction between (41) and (43) is that whilst the epithet in (41) is clearly intended to be co-referential with John we cannot say the same about the demonstrative description in (43). Let us rewrite (43), ignoring the CP *that*, without intending the co-referential reading:

(44) John is such a bad driver that man will get himself killed.

It is very easy to get a felicitous reading of (44) whereby *that man* refers to a contextually salient individual, and hence is interpreted as being deictic. The first thing to note therefore is that the co-referential reading of (41) is enabled through the NP complement of the definite description being vital to the interpretation. In other words, the felicitous reading of the definite description being co-referential with John is enabled through the DP phase's interior, as opposed to its edge. Therefore, the interior is enabling the referential use. Nevertheless, if we translate (43) by using the same descriptive content the co-referential reading still escapes us:

(45) John is such a bad driver that idiot will get himself killed.

Once again, the most natural reading of (45) is where the demonstrative description creates deictic reference instead of being co-referential with John. The underlying grammatical differences between (41) and (45) might offer us an answer then. With respect to (45) the deictic reading becomes favoured in virtue of it being edge heavy, and the expressive NP cannot override this, whereas the co-extensional reading of (41) is allowed because, whilst remaining definite and thus specific, its interior is doing the relevant work. The only way to get (45) to come out co-extensional is through a focus on the NP complement, and that reading remains challenged through the edge being heavy.[187]

The idea behind Schlenker's 'minimize restrictors' is that a definite description can only break the rules of condition C if a more minimal, for instance pronominal, expression is unable to communicate the same content. For instance, the pronoun *he* in (39b) is felicitous but it does not rule out (39a) as it does not provide the expressive content of the epithet. Additionally, Schlenker notes that definite descriptions whose job it is to disambiguate referents will be favoured over pronominal expressions, which ultimately fail at this job:

(46) [A linguist]$_1$ working on Binding Theory was so devoid of any moral sense that [he]$_1$ forced a physicist working on particles to hire [**the linguist's**]$_1$ girlfriend in his lab.

(47) A linguist working on Binding Theory was so devoid of any moral sense that he forced a physicist working on particles to hire **his** girlfriend in his lab.

In (46) the definite description in bold disambiguates and co-refers with *the linguist working on Binding Theory*, whereas in (47) the pronoun in bold is ambiguous between the linguist and the physicist. Hence, the definite description is enabled through providing a disambiguating function that the pronoun does not (Schlenker 2005, 387).

[187] The difference between (41) and (42) may well be the result of the expressive NP complement and therefore a lexical distinction. It could well be explained through pragmatic effects (as indeed Schlenker argues). However, the distinction between (41) and (43) is a grammatical one, and the descriptive content becomes a subsidiary problem.

There is something going on here that is pertinent to our understanding of how grammar distinguishes pronouns and definite descriptions. It tells us why they are similar but at the same time why they are distinct. Definite descriptions must be employed if they contain information that is pertinent to the utterance context, the expressive content of the epithet in (41a), or if they disambiguate a co-referential expression, as in (46). Otherwise, a pronoun is sufficient. This explains why there is a subtle difference between (40a) and (40b). If the individual to whom *the manager* refers is salient, but is not salient as being the manager, then a speaker will employ (40a). However, if the same individual is both salient and known by the speech participants to be the manager, then the speaker will likely employ (40b), providing of course that the speaker wishes to express something about the manager. The differences are subtle, but they concern the weight that grammar puts on the descriptive content contained in the argument. Pronouns contain descriptive content but it is restricted to values for φ-features, whereas definite descriptions have their descriptive content explicitly marking in a separate NP complement together with φ-features. Pronouns such as those in (40b) are therefore more edge heavy, whereas the interpretation of a definite description will partially depend on the interior. The same result was viewed with respect to the differences between (41a) and (45). The edge of the demonstrative fails to provide a natural epithet reading, whereas the definite description does not fail in the same way. These results point towards the idea that the grammatical structure underpinning the DP provides insight into the similarities and differences between definite descriptions and other arguments.

Following from this we can make additional changes to the forms of reference that definite descriptions exhibit. First of all, a definite description can be used as a co-referential epithet in instances where it provides expressive content as part of its interior, which details the speaker's attitude to the co-referential term. In such instance, the co-referential use is enabled by the content of the DPs interior. We can therefore state that at times the DP interior is central to an act of using a definite description referentially. Secondly, the distinction between epithet definite descriptions, demonstrative descriptions, and pronouns all comes down to the phase edge/interior dichotomy. Thirdly, we can use definite descriptions in deictic contexts where a pronoun would work so long as the phase interior contains information pertinent to the speech-event.

6.2

REJECTING A LEXICAL ACCOUNT OF AMBIGUITY

In what follows we will provide our final analysis of the genesis of the CAP, GAP1, and GAP2, wherein we will propose that each of the ambiguity problems has a genesis in grammar and that each can be solved through reference to the grammar of DPs in conjunction with the grammatical environments in which they fall. The first position that we will reject in reaching our conclusion is that the ambiguous uses of definite descriptions have their origin in the lexical entry for the definite article. The position divides into the following, either the lexical entry for the definite article contains both a referential function and a quantificational function, or there exist two lexical entries attached to the phonetic label *the*. We reject both options. The idea driving our critique is that it is not possible to posit syntax-like information in the lexicon (Marantz 2000; 2006; Borer 2005; Boeckx 2008). We will charge the lexicalist account of ambiguity as doing just this.

To argue that the lexical entry for *the* has a semantic-type is to posit and commit to something very much representative of syntactic structure in its lexical entry. For example, let us take the lexical item *the* to be linked to the two lexical entries, which we can term 'listemes', one of which represents a referential semantic-type <<e, t>, e> and one of which represents a quantificational semantic-type <<e, t>, <<e, t>, t>>:[188]

(48) a. Listeme One
[the] = <<e, t>, e>
[the *F*] = <e>

b. Listeme Two
[the *x*] = <<e, t>, <<e, t>, t>>
[the *x*: *Fx*] = <<e, t>, t>>

The first thing we can observe with the two entries in (48) is that neither contains any descriptive idiosyncratic information, unlike the entry for

[188] We have not encountered the semantic type <<e, t>, e> so far but it is easy to define. Using the type-based semantics introduced in §2.2 we can state that a type <<e, t>, e> expression takes a predicate expression of type <e, t> (in the case of the definite article this would be the NP complement) and produces an expression of type <e>, namely a referential expression.

apple would. It is not obvious what kind of descriptive information we could attach to *the*. Therefore, it is safe to say that whatever the lexical entries in (48a) and (48b) amount to, they are of a different kind to the root √apple.

As a comparison class we might take a verb such as 'kick', which, at least superficially, can be understood to be more complex than the root √apple. For instance, we might take the word *kick* to have three lexical entries standing for its use as an intransitive, transitive, or ditransitive verb respectively:

(49) a. Listeme One
[kick] = <e, t>

b. Listeme Two
[kick] = <e, <e, t>>

c. Listeme Three
[kick] = <e, <e, <e, t>>>

As we can see, the lexical entries for *kick* now contain the positions within which a varying number of arguments may fall (in other words the lexical entries contain information regarding the verb's adicity). It would appear from our analysis of *kick* that we have something resembling a thematic matrix in the lexicon. We have argument places, and they are ordered, thus we have a thematic matrix! However, as we observed in §5.33 a thematic matrix is constructed through a multitude of syntactic projections, including functional projections (non-lexical projections) as part of the *v** phase. The adicity that a verb exhibits is a direct result of the *v** shell, and therefore it is not something special about the word *kick*. Additionally, there is nothing stopping *kick* from being nominalised as in *the first kick of the game*. Are we to assume it also has a lexical entry for this nominal use? The answer is no. Instead, all of these uses are derived in virtue of the grammatical positions in which the root √kick can fall. The meaning of kick is derived by its exo-skeleton, which is the surrounding grammatical environment in which it is placed.

The reason is because the listeme for *kick* is an open-class root, whose presence as a certain verb or even a noun is derived. When used as a verb it gets this property in virtue of being merged to *v**, whereas when it is used

as a noun it gets this property in virtue of being merged to D. We come to this conclusion following Borer who states that:

> [s]yntactic properties typically assumed to emerge from properties of listemes, are, by and large, properties of structures and not properties of the listemes themselves… it is the properties of the 'outside', [the] larger structure which ultimately determine the overall 'shape' of what is within, rather than the other way around. (Borer 2005, 15)

And,

> The lexical entry for a word contains descriptive information, it contains information as to why the word "*potato* is distinct from a *pumpkin*", but it does not dictate what a word's structural role is. (2005, 15)

The lexical entry for *kick* contains idiosyncratic information but no information regarding its being used as a verb or noun. It contains no information as to its grammatical role, its adicity, or any further structural information. If this 'exo-skeletal' view from Borer, that the outside (the syntactic structure) values the inside (the lexical item), is correct in respect to *kick*, then is it correct for other items like *the*?

The two lexical entries for *the* offered in (48) contain complex semantic-types, and are thus structural. At the very least, each contains a place to accommodate an NP complement. The first entry contains a referential function that combines with a phrase of type <e, t> to produce something of type <e>, whereas the second entry contains a quantificational function that produces something of type <<e, t>, t>. The lexical entries therefore contain information about the nature of DP and its projections including for instance the fact it has an NP complement (or at least a complement of type <e, t>). We therefore have syntax in our lexical entries. In addition, the two lexical entries dictate how the expressions are to be interpreted and their contribution to what is said. The two entries dictate a very restricted set of forms of reference available to definite descriptions and, as we saw throughout §6.1, the forms of reference enabled by a type-based semantics fail to capture the multifarious ways in which definite descriptions can be used.

The problem with the lexicocentric approach is that it leads to a proliferation of information in LEX. In rejecting such an account, Borer states that the LEX/syntax divide is best understood as follows, "the dividing line here is not between vocabulary items and syntactic structure, but between substantive vocabulary on the one hand, and functional vocabulary (including derivational affixation) and syntactic structure on the other" (2005, 10). Substantive vocabulary includes the idiosyncratic information carried by a listeme, and is what we traditionally associate with the meaning of the root √apple for instance (edible, spherical, and so on), and functional vocabulary that is inherently grammatical. The following passage from Borer sums up the concept of the lexicon that we are defending very neatly:

> I believe that the proposed dividing line is a real one, and that it distinguishes between what is grammatically real—structures and formal properties of functional items, and what may be very real, but not grammatically so—properties of substantive vocabulary. The latter, I propose, are creatures born of perception and conceptualization, representing an intricate web of layers upon layers of a complex perceptual structure and emerging world knowledge, concepts which come to represent it, the reflection upon these concepts, and so on. Their properties, however characterized, are thus fundamentally not grammatical. (2005, 10-11)

The distinction is one that we started this thesis with, a distinction between descriptive/lexical words and functional/grammatical words. We thereby reject the idea that we can place any grammatical, or semantic-type (compositional semantic) information in the lexicon.

The work provided in §6.1 developed the idea that a definite description's contribution to what is said is derived in virtue of its DP in conjunction with the grammatical environment that DP is place within. We expanded the forms of reference it exhibits in conjunction with the options grammar affords. We therefore do not need to posit anything like a semantic-type in the lexicon, and we do not need to posit anything syntactic in their either. The maximum information we can attach to the lexical entry for *the* might well be that it is only to be merged in D. In other words, we might state that it has a [+ determiner] feature attached, but we cannot posit any structural information regarding the complement it takes, the information in its

extended edge, or the wider grammatical configurations it is placed within. If we are to continue with a type-based semantics, then we can only capture a definite description as having a particular semantic-type after it has gone through the syntactic component. We leave this final option open, but we maintain that it is not the case that the lexical entry for *the* contains a semantic-type, and by extension reject any lexicocentric account of the ambiguity problems.

6.3

REVISITING LINGUISTIC CONVENTION

At this point it is worthwhile revisiting the question of how the linguistic convention associated with referential uses of definite descriptions emerged. The answer to this question should be clear by now; the linguistic convention is a direct result of the underlying grammar of such uses. In §4.24 we illustrated that there is good reason for taking the definite article to have a close-knit relationship with the distal demonstrative. This relationship was illustrated with cross-linguistic work in §4.24 (Cyr 1993; Huang 1999), the grammatical topology of DPs in §5.342 (Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014), and our analysis of various substitution instances through §6.1. However, we also noted differences, including the fact that distal demonstratives do not require an NP restriction and contain deictic locational information. These observations become concrete in our analysis of the topology of DPs. The referential uses of definite descriptions emerge in virtue of their on the referential hierarchy captured in DPs topology in conjunction with the grammatical environments in which they can be placed. In §5.4 we provided an account of how grammar feeds directly into general directions for using. We can therefore claim that the linguistic convention for using a definite description referentially can be read of its general directions for use, which are in turn grounded in grammar.

In the cases wherein a definite description is indeed interpreted as making reference to a particular individual we observe that the DP it is contained within will be interpreted as being edge-heavy, which is in turn a result of being placed within a grammatical environment that is amenable to such an interpretation (the deictic uses outlined in §6.11 exhibit one such example). Conversely, the linguistic convention for interpreting a definite

description attributively is a result of the DP it is contained within being interpreted as interior-heavy, which is once again a result of being placed within a grammatical environment that is amenable to such an interpretation, as seen in examples (2) and (25). Furthermore, the possible range of linguistic conventions available for using definite descriptions correspond exactly with the range of options for DPs (their internal topology) and the grammatical environments that they can be placed within. The intuitions that we have about the uses of definite descriptions are therefore grounded in facts about grammar more generally. We can understand grammar as the source of compositional semantic linguistic conventions.

6.4

THE THREE AMBIGUITY PROBLEMS

It is now time to turn to provide our grammatical account of the genesis of the three ambiguity problems from §1.1. We will begin with the two grammatical ambiguity problems (GAP1 and GAP2) before turning to the classical ambiguity problem (CAP).

We can begin by repeating GAP1 below:

(GAP1) The First Grammatical Ambiguity Problem

> Take two grammatically distinct definite descriptions *d* and *d′* that are part of the same wider expression ζ, is it possible that *d* is semantically referential and *d′* is semantically quantificational in virtue of being grammatically distinct?

We will answer GAP1 in the positive. It *is* the case that given two grammatically distinct definite descriptions *d* and *d′* that are part of the same expression ζ, *d* can be semantically referential and *d′* can be semantically quantificational.

Answering the GAP1 in the positive is necessary given the framework that we have developed. The first part of the framework involved giving grammar a central role in the composition of semantic content within an expression. One central part of this work included stating that the grammar of DPs determines a referential hierarchy that equates to a set of forms of reference that an argument can exhibit. The forms of reference were then

understood as emerging through the topology of DPs and the grammatical environments in which DPs can fall. We therefore answer GAP1 positively in virtue of the fact that there exist grammatical distinctions within DPs that enable certain definite descriptions to exhibit a strong form of reference and others to exhibit a weak, or quantificational, form. Finally, the fact that the problem exists in the first place is a result of the grammar of DPs providing a rich and intricate set of interpretations for definite descriptions.

We can offer a defence of this answer through the following two sentential expressions, which are distinguished only insofar as the definite descriptions have a different grammar:

(50) [DP The mother of that child] is angry.

(51) [DP the mother of some child] is angry.

The first thing to note is that we have placed the whole possessive construction within a single set of DP brackets in order to indicate we take the possessives as a whole to be grammatically distinct. We can understand the DP in (50) to constitute *d* and the DP in (51) to constitute *d'*. If we recall that we defended the view in §5.4 that grammar fully specifies what is said, then it is clear that we are committed to the view that what is said in (50) is distinct from what is said in (51). Through defending the claim that grammar determines what is said we are thereby committed to the view that the truth-conditional content of the two is distinct. In order to illustrate this we need to place the sentences within a context and create a speech-event, which is required for the two to exhibit a complete propositional utterance.

We can situate the two sentences in a speech-event that takes place in a context wherein there is an angry mother who is salient but there is no child present. To begin with, let us take a speech-event involving (51). An utterance of (51) in this context is perfectly felicitous. In this case the truth of the utterance only depends on the woman being both a mother and being angry, it does not depend upon her being the mother of any child in particular. Conversely, an utterance of (50) will be marked if it is not the case that there is either a contextually salient or discourse salient child. The truth of (50) therefore depends upon the woman being the mother of a

particular child. The truth-conditional content of each utterance is therefore distinct. The difference between the two sentences is captured in the fact that the form of reference exhibited in each DP is different, which as we explained in §6.13, is the result of the grammar of the possessor DP. The form of reference in (50) requires a salient child, whereas the form of reference in (51) does not. The definite description in (50) falls higher up the referential hierarchy than does (51).

The interpretive differences are accounted for through the fact that the grammar of (50) produces a strong form of reference, with the distal demonstrative, in the speech-event described, forcing deictic reference, whereas the grammar of (51) produces a weak, quantificational, form of reference that fails to pick out an individual in the speech-event's deictic frame. The difference between *d* and *d'* is therefore the grammar of the possessor DP. We therefore conclude that the genesis of GAP1 is to be found in the topology of the DP phase. A solution to this problem is to make explicit the forms of reference that the DP phase enables, which has been pursued in the 'grammar-reference link' hypothesis (Longobardi 1994; 2005; Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014), and the work provided in §6.1.

It should come as no surprise at this point that our account of the genesis of GAP2 is also found in grammar. The problem is as follows:

(GAP2) The Second Grammatical Ambiguity Problem

> Take two grammatically distinct expressions ζ and ζ' each of which contains the same definite description *d*, is it possible that ζ forces *d* to have a referential semantics and ζ' forces *d* to have a quantificational semantics purely in virtue of the grammatical configuration in which *d* falls?

We once again answer GAP2 in the positive. The grammatical environment wherein DPs can be felicitously placed will have interpretive effects on the form of reference they exhibits.

To illustrate our account of GAP2 we can return to the distinction we drew earlier in §6.11 between (52) and (53):

(52) The desk is covered with books.

(53) I hope the joiner builds the desk in mahogany.

We will take the two speech-events exhibited by an utterance of each to be made in the same context, a context wherein there is a contextually salient desk (which we can take to be made of mahogany). The two utterances are equally felicitous in this case. However, (52) picks out a referent in the speech-event HERE and NOW. It picks out the contextually salient table. An utterance of (53) does not, and cannot, because it is part of an embedded clause understood in the future tense relative to the speech-event NOW and as displaced from the speech-event HERE. We can assume that both definite descriptions exhibit the same grammar, and therefore that their two uses are not a direct result of the topology of the DP, therefore the form of reference that each exhibits is a result of the wider grammatical environment in which each is placed. It is once again an 'exo-skeletal' effect on meaning, this time happening at the phrase level.

The wider grammatical environment is pivotal to the interpretation placed on a definite description and to what is said. To recall, in §5.4 we stated that the level of what is said is only reached once we have got a complete matrix C, which contains values for the speech-event features that project within it. It is the matrix C cycle that leads to interpretive differences between (52) and (53), which values referent of the definite description in (52) as being part of the speech-event HERE and NOW, but does not do this with the definite description in (53). It is these grammatical facts concerning the relation of the definite description (or the clause it is part of) to the matrix C, that governs the distinct form of reference each exhibits and the consequent impact on what is said. The GAP2 is therefore defended on the basis that the form of reference that a definite description exhibits is not solely the responsibility of the topology of DPs. Instead, it is this topology that provides options for interpretability that are then valued (for instance as being a strong deictic form, or a weak quantificational form) through their place in the wider grammatical environment including, critically, their relation to the speech-event projections. The genesis of the ambiguity problem GAP2 is therefore found in grammar, once again.

It is now time to provide an account of the genesis of the CAP and a solution to it:

(CAP) The Classical Ambiguity Problem

> Given an expression ζ containing a definite description *d*, is it possible that in one context of use *d* is semantically referential and in another context of use d is semantically quantificational?

The first thing that we should mention is that what is said across contexts will be distinct in virtue of having distinct values for the speech-event features that accompany any utterance. Therefore, if the CAP is developed on the understanding that we have the *exact* same grammar in the two contexts, and thus the same linguistic meaning and what is said, then it does not hold. Nevertheless, no two utterances are valued the same. Every utterance has values the clause it expresses relative to the HERE and NOW, and the speaker and addressee. Grammar encodes for information surrounding the clausal interaction with speech-event time, location, and the logophoric agent and patient. The first thing we can say therefore is that if we take a sentential expression ζ containing a definite description and produce two distinct speech-events with it (i.e. use it in two distinct contexts), then what is said will be different on each occasion. In other words, whilst the two speech-events may *appear* to both involve the same expression ζ, in reality they do not. The expression is the same only insofar as we can ignore grammatical facts that impact the interpretation and what is said, which happen to be phonetically null in English. There exists what Sigurðsson calls 'meaningful silence' in the grammatical configuration (2004a; 2009) that underpins a speech-act, and it therefore distinguishes two uses of the 'same' expression.

The idea we are pursuing leads to the following conclusion, we only get an ambiguity between two uses of an expression containing a definite description if there are grammatical differences lurking beneath. It can be stated therefore that the CAP only emerges if we conflate two distinct speech-events, with correspondingly distinct values for the speech-event projections, and understand them as involving the same expression. In reality, it is never the same expression used in two contexts. Therefore, what is said in using an expression in two different speech-events will always be distinct and reflect grammatical facts concerning the values given to the related speech-event projections.

We must at this point clarify that we are not rejecting the idea that the two speech-events are closely related in their linguistic meaning. In §5 we developed the idea that grammar produces a skeleton of thought and a blueprint within which we can understand the composition of semantic content in a sentence. We argued that the topology of DPs corresponds to varying forms of reference, that the *v** phase corresponds to the available options in constructing thematic matrices, and finally that C provides the range of options for the force, focus, topic, and speech-event values. In virtue of this, the options available for grammatical configurations exhausts the options available for semantic content, for forms of reference, quantification, event structures, illocutionary force and mood, and so on. Therefore, if a seemingly identical sentence is uttered in two contexts it will contains the same values for everything *except* the configurations that relate to the speech-event. The linguistic meaning of the two will be identical *except* for in relation to the speech-event. Therefore, we can state that the CAP has its genesis in a conflation of two distinct speech-events, with distinct values for the speech-event projections, which mistakenly takes what is said in each case to be the same.

It is for these reasons that we saw it necessary to distinguish the ambiguity problems in the first place. For the most part, when an ambiguity is proposed it falls into one of the GAP1 or GAP2 categories. The descriptions literature tends to introduce particular sentential forms in the defence of a QT, RT, or AT. For instance, an AT (or RT) will use sentences such as (1) to defend the existence of a referential semantics, and a QT will use sentences such as (25). However, we have given good reason to think that the form of reference exhibited in each is to be grounded in grammar. The CAP is therefore ill founded if it conflates two distinct grammatical structures in the construction of the problem it is meant to exhibit. All forms of ambiguity in definite descriptions have their source in grammar.

To conclude this chapter let us reiterate the position.

(GT) The Grammatical Theory of Definite Descriptions

i. The topology of DPs creates a rich variety of forms of reference that arguments can exhibit ranging from weak quantificational reference to strong deictic personal reference. The topology creates a hierarchy of reference

(Longobardi 1994; 2005; Sheehan & Hinzen 2011; 2013; Martin & Hinzen 2014).

ii. The hierarchy of reference is dependent upon the phase edge/interior dichotomy.

iii. Definite descriptions fall in the middle of this referential hierarchy. Their interpretation depends upon both the edge and interior.

iv. The forms of reference a particular definite description exhibits on an occasion of use is in part determined by the topology of DP and in part determined by the grammatical environment in which it is placed.

v. Certain grammatical environments force the definite description to be interpreted as being edge heavy and thus we get an instance of deictic reference (see §6.1), others force it to be interpreted interior heavy and thus we get a weaker form of reference.

vi. Finally, the form of reference exhibited is always taken with respect to the speech-event HERE and NOW (Sigurðsson 2004b; 2007; Hinzen *forthcoming*).

vii. In virtue of (*i*) – (*iv*) definite descriptions exhibit a wide range of forms of reference, which explains the existence of the three ambiguity problems.

The above constitutes our account of the genesis of the three ambiguity problems and the grammatical solution to them.

The account is distinct from those in the literature. It defends the existence of the two uses as being distinctions in what is said but rejects all previous accounts of the distinction. It rejects the view that we can give the lexical entry for the definite article an ambiguous semantic-type in virtue of rejecting the view that we can give any lexical item a semantic-type. The semantic contribution of any word is derived as part of the syntactic component of language. It is 'exo-skeletal'. Furthermore, it rejects the view that the two uses emerge through pragmatic machinery, as no pragmatic machinery is required in order to reach what is said. Grammar provides a

complete, fully specified, set of truth-conditions for an utterance, situates it in the speech-event, and specifies what forms of reference the arguments it contains exhibit. Therefore, grammatical structure provides a suitable account of the ambiguity problems in definite descriptions and contributes a new way of looking at compositional semantics more generally.

CONCLUSION

The problem(s) of ambiguity in definite descriptions concerns a wider problem in linguistic theory, which is that of how expressions, as such, interact with the world and its language users in acts of communication. In language use we employ a multitude of cognitive faculties in the production, and subsequent interpretation, of a linguistic expression. A speech-act goes through, at least, the following stages: first it is ran through the syntactic faculty, whose job it is to take lexical items and form strings from them that abide by rules of the language (including feature valuation, thematic matrices, and morphophonemic structure), then it is sent to the two interfaces, which include a semantic faculty, whose job it is to interpret the composition of meaningful information captured in the string (both structural and lexical), and a sensory-motor faculty, whose job it is to enable production and interpretation of the morphophonemic structure of the string, finally once the string is placed in an actual speech-event it is understood in conjunction with pragmatic machinery, whose role is traditionally conceived of as enabling speech participants to understand the string in relation to the utterance context, the speech participants intentions, the cultural background, and much more besides. The ambiguity problem in definite descriptions is typically formulated at the border between the semantic faculty and pragmatic machinery, however we have given reason to believe that much of what is traditionally labelled

'semantic' and 'pragmatic' is in fact grounded in the syntactic component, in the expression's grammar. In virtue of this, we have attempted to provide an account of the ambiguity problem(s) in definite descriptions that traces its genesis back to facts about the grammar of such expressions and the wider grammatical configurations in which they may be placed, we called this the grammatical thesis (GT).

At this point it is worth briefly revisiting the first limitation that we placed on the thesis in the introduction. The first limitation was that the GT will not argue that grammar impacts the idiosyncratic information captured in descriptive/lexical words over and above their grammatical role in a clause and any further grammatical constraints placed upon them. We can understand this limitation relative to an example:

(1) Ronaldo is a footballer.

The idiosyncratic information held by the lexical root √Ronaldo will vary from speaker to speaker. Those well informed about football may associate the following propositions with the root: 'Ronaldo is a Real Madrid player', 'Ronaldo is an ex-Manchester United Player', 'Ronaldo won the 2014 Ballon d'or', 'Ronaldo scored in the 2008 champions league final', 'Ronaldo is Portuguese', and so on. Irrespective of this, the root's meaning is not itself equated with one or the other of these propositions. It is simply that an informed language user, upon hearing the word, may associate these pieces of idiosyncratic information with it. Furthermore, grammar cannot differential (2) and (3):

(2) The cat is in the garden.

(3) The dog is in the garden.

The idiosyncratic information that we attach to the roots √cat and √dog cannot be influenced by grammar. What is influenced in cases such as (1)-(3) is the structural role, and form of reference, that the roots exhibit (or the form of event, if we are discussing roots acting as verbs). As we stated in §5.342, a root such as √Ronaldo becomes rigid, not in virtue of its lexical entry, but in virtue of undergoing N-to-D movement in DP. Grammar thus has an impact on the form of reference associated with *Ronaldo* in (1), it dictates that it is to be understood as exhibiting rigid reference, but it does

not dictate his gender[189], nationality, profession, or incredible goals to games ratio. These are aspects of meaning that grammar has no authority over. The same observation exhibits between *cat* and *dog*, grammar dictates that they are to be understood as a singular NP complement to a determiner, but the fact that the former are felines and the latter canines is incidental to grammar.

A pressing question thus emerges, how can the GT deal with instances of misdescription? As we illustrated in §1.2 the classical ambiguity problem (CAP) was formed in relation to instances of misdescription, and it has thus been part of the landscape of the literature. For one last time, consider Donnellan's courtroom example:

(4) Smith's murderer is insane.

The first thing to state is that the possessive construction can be given an analysis through which the form of reference it exhibits mirrors the grammar of the extended DP shell and in particular the grammar of the possessor DP (§6.13). The form of reference (4) exhibits is thus stronger than when the possessor is a quantifier phrase and weaker than when it is a pronominal or demonstrative phrase. Furthermore, the speech-act captured is grounded in the grammar of the speech-event features (SE_F). Thus, the values tied to these features will tie (4) inherently to the speech-act taking place, including a valuation to the speech-location (S_L) and speech-time (S_T) that places it in the HERE and NOW.

However, there is a distinct possibility that the descriptive content in (4), the idiosyncratic information tied to the lexical roots employed in *Smith* and *murderer*, misdescribes. Jones may well be innocent. The point to be made here is that the form of reference exhibited is not affected by misdescription as it is entirely grounded in grammar. Reference is opportunistic. Once a grammatical structure is built, the form of reference that is grammatically encoded is activated without being interested in whether or not it contains the appropriate descriptive material. It is this that can account for Donnellan's intuition that the speaker has in some sense succeeded in referring to Jones, and said something true, even though she misdescribes him. Critically, all of this is enabled without

[189] Proper names such as this are not valued for grammatical gender, unlike third person animate pronouns for instance.

reference to pragmatic machinery, such as contextual enrichment of what is said. The speech-act is tied to the HERE and NOW and the argument creates a form of reference that interacts with these speech-event features to deliver a referential act. The same idea carries over to the Smith/Jones case with proper names, and any further instance of an argument that misdescribes its referent.

The second limitation that we placed on the thesis concerned how we should understand the results of our GT on compositional semantics, and in particular what role it leaves for logical form as captured in formal semantics. To begin with, we can state that the motivation for the GT was to reduce the amount of structure present in the C-I interface, wherein logical form can be understood to reside. We associated full clausal structure, illocutionary force and mood, speech-event features, and truth to the grammar of CPs (§5.32), thematic matrices and the organization of events to *v**Ps (§5.33), and the referential status of arguments to DPs (§5.34). In doing so, we consequently reduced the computational burden of the semantic machinery often assumed to be present in C-I through illustrating that it can be reduced to facts about grammar. The thesis might thus be seen as an attempted refutation of the usefulness of logical form as a tool in natural language semantics research. However, this would be both hasty and wrong. There is nothing in principle to stop an integrated theory of the grammatical observations raised in this thesis and formal semantics. In concluding this thesis we will briefly look at how such a theory may develop.

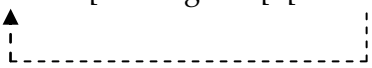
Throughout the thesis we have endeavoured to show that a lexicocentric account of compositional semantics is misguided. The problem with a lexicocentric account is that the labels attached to lexical items contain what is essentially grammatical information (§6.2). For instance, a word such as *Ronaldo* is traditionally labelled as being of type <e>, standing for a referential term, but we have indicated that it becomes referential (and rigidly referential at that) through N-D movement, an operation that is grammatically complex. Through giving a lexicocentric account of its semantic-type we thereby preordain it to being rigid. This is false and illustrated in *the English Ronaldo* where it acts as a predicative NP and would receive the type <e, t>. However, there is nothing to stop formal semantics looking at grammatical patterns in its determination of semantic

types. To illustrate this idea let us first illustrate an extended account of DPs:

(5) [D# [Deix [D [Num [Mass/Count [*n* [N]]]]]]][190]

We might understand a type <e> version of *Ronaldo* as (6):

(6) [D# [Deix [D Ronaldo [Num singular [*n* [N ~~Ronaldo~~]]]]]]



Through analysing *Ronaldo* as taking part in an instance of N-to-D movement we can now label it is a rigidly referring expression. The structure present in (6) can thus be understood as being of type <e>, with the caveat of being a rigid type <e> expression. In the instance where N-to-D movement does not occur, as in *the English Ronaldo*, then *Ronaldo* is valued as type <e, t>. An analysis of this sort would thus avoid the issues concerning lexicocentric analyses often present in type-based compositional semantics, whilst retaining a robust integration with the underlying grammatical configurations. It is a contention of this thesis that extending an analysis of (6) to further aspects of compositional analysis will prove more productive in the long run than its lexicocentric counter-part. Furthermore, the empirical status of formal semantics would be strengthened. Of course, the example in (6) is of the most basic form and further complications would doubtless arise as the functional structures in grammar were extended, dropped, or reinterpreted. Nevertheless, there is no reason to take the present thesis as a direct attack on formal semantics, but it should be viewed instead as a criticism of a lexicocentric version of it.

In closing, it is hoped that we have illustrated how a thorough study of grammar can help shed light on a theory of descriptions and the genesis of the three ambiguity problems. A theory of descriptions is only as sound as the compositional semantic theory within which it is placed, and to that end we have endeavoured to illustrate how grammar might be seen as productive in constructing a skeleton or blueprint of compositional

[190] We have introduced a mass/count projection only to indicate that something of this sort is argued for in the literature (Borer 2005), and little *n* as well (Chomsky 2007). The DP in (5) is still restricted, there are numerous further projections that may be posited (Zamparelli 2000b; Cinque 2002a; Svenonius 2004; Leu 2008), and perhaps instances of feature percolation (Sigurðsson 2004b; see also Bondaruk, Dalmi, & Grosu 2014; Dalmi 2014).

semantics. Moreover, we hope to have shown that there are good reasons to doubt any compositional semantics that takes lexically grounded semantic-types as primitive word-units in the system. The thesis is not meant to be a comprehensive account of each and every grammatical variant available for definite descriptions, but instead limits its scope to deal with examples that are frequently raised in order to defend one or another thesis on descriptions. It is hoped that further work on the grammar of DPs will capture the variants of definite descriptions that we have no addressed, and that the grammatical framework for meaning that we have provided will capture their semantics transparently. In sum, if nothing else, the thesis has shown that grammar is not simply ancillary to meaning, but is, instead, one possible theory of it.

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