



Australian
National
University

THESES SIS/LIBRARY
R.G. MENZIES LIBRARY BUILDING NO:2
THE AUSTRALIAN NATIONAL UNIVERSITY
CANBERRA ACT 0200 AUSTRALIA

TELEPHONE: +61 2 6125 4631
FACSIMILE: +61 2 6125 4063
EMAIL: library.theses@anu.edu.au

USE OF THESES

This copy is supplied for purposes
of private study and research only.
Passages from the thesis may not be
copied or closely paraphrased without the
written consent of the author.

REFERENCE, CONTEXT,
AND
PROPOSITIONS



KAI YEE WONG

A thesis submitted for the degree of
Doctor of Philosophy
of the Australian National University

Division of Philosophy and Law
Research School of Social Sciences
August 1990

Declaration

Except where otherwise acknowledged,
this thesis is my own work.

K. J. Day

Acknowledgments

Without, of course, holding them responsible for any shortcomings in this thesis, I wish to acknowledge my indebtedness to a number of people.

First and most importantly, I am deeply grateful to my supervisor, Frank Jackson, for his wise guidance over the last four years. I profited immensely from our discussions and from the constructive comments he gave on the drafts and their ancestors. His encouragement was indispensable, especially given my constantly changing attitudes towards this work: the pride and despair, the confidence and the misgivings.

I am also grateful to Peter Menzies, my adviser in the final stage of writing, who has kindly read the draft of each chapter and has made many helpful comments.

I owe many thanks to Dominic Hyde, Ed Mares, Graham Oppy, and, especially, Andrew Gleeson for reading the drafts and suggesting to me many helpful points. I would also like to thank Kim Sterelny, who was my adviser until his departure from the School, Fred Kroon, and Martin Davies for their comments on my work at various stages in its development.

In addition to most of those mentioned, some friends have helped me with grammatical difficulties, which inevitably arise when someone with a Chinese tongue writes his thesis in English. I therefore offer my sincere appreciation to David Braddon-Mitchell, Andrew Brien, Robin Davies, Dennis Loughrey, and Dawn Partridge.

I owe a special debt of gratitude to my early mentor, Tien Ming Lee of the Chinese University of Hong Kong, who first roused my interest in analytic philosophy, and from whom I have learnt a great deal.

Finally, this dissertation is dedicated, with profound gratitude, to my parents, sister, and brothers, to whom I owe more thanks than I can say.

Kai Yee Wong
Canberra 1990

Abstract

This thesis is a detailed investigation of a web of philosophical problems surrounding what I call *Kripke's Thesis*: if proper names are directly referential then such identity statements as 'Hesperus is Phosphorus', which are constructed from two distinct but co-referential proper names, are necessary and yet *a posteriori*.

Chapter 1 clarifies some confusions surrounding Kripke's view about rigidity (rigid designation) and his theory of naming. Problems concerning the scope interpretation of rigidity, rigid descriptions, and Kaplan-rigidity are dealt with. My major claim is that the fundamental notion of Kripke's theory of naming is *direct reference*, not rigidity.

In Chapter 2, I first establish the 'modal half' of Kripke's Thesis. Then an objection against Kripke's Thesis is presented. The central claim of the objection is this: given that proper names are directly referential and that the proposition expressed by (e.g.) 'Hesperus is Hesperus' is *a priori*, 'Hesperus is Phosphorus' expresses the same *proposition* as 'Hesperus is Hesperus', and is therefore *a priori*. An attempt, based on a suggestion by Plantinga, to defend Kripke's Thesis is shown to be unsuccessful.

In Chapter 3, it is first noted that the objection previously presented involves the assumption (T): '*a priori*' applies primarily to propositions and derivatively to sentences. Then, on the basis of Stalnaker's semantic apparatus of *propositional concepts*, a two-dimensional account of *a priority* is developed. By rejecting (T) and embracing a sentence-relative view of '*a priori* propositions', this account provides a defence of Kripke's Thesis. It is argued that this is not an *ad hoc* defence.

In Chapter 4, attention turns to some problems concerning *context dependence*, a central feature of the two-dimensional account proposed in Chapter 3. Chapter 4 starts with the observation that the account seems to be committed to an indexical treatment of proper names. This prompts a demonstration of the compatibility of indexicality and rigidity. The demonstration, drawing on Kaplan's semantics for indexicals, introduces, however, the more serious problem of how to square the purported indexicality of proper names, as revealed by the two-dimensional account, with Kaplan's

contention that proper names have a stable *character*. A solution which invokes the notion of *frame relativity* is proposed.

The first section of Chapter 5 aims to clarify the intricate relation between 'singular propositions' and 'direct reference'. The rest of the chapter is a detailed analysis of Salmon's attempt to refute Kripke's Thesis. It is argued that Salmon's attempt fails, and that the source of his failure lies in his characterization of *a priori*. Some objections to this analysis are considered and rejected.

Contents

<i>Acknowledgments</i>	iii
<i>Abstract</i>	iv
<i>Preface</i>	ix
Chapter 1. Naming, Rigidity, and Direct Reference	1
1. Is Rigidity the Key to Naming?	2
1.1. Genuine Naming Devices	2
1.2. Rigidity and Scope I	8
1.3. Rigid Descriptions	17
2. The <i>De Jure / De Facto</i> Distinction	20
3. Rigidity and Scope II	22
4. Kripke's Refutation of the Description Theory	29
4.1. The Millian View of Names	29
4.2. The Description Theory	31
4.3. Kripke's Arguments against the Description Theory	34
5. Direct Reference, Semantics for Modal Logic, and Kaplan-Rigidity	39
5.1. Individual Variables and Direct Reference	39
5.2. Kaplan-Rigidity	42
5.3. Kaplan-Rigidity and Rigid Descriptions	48
6. Concluding Remarks	51
Chapter 2. Against the Necessary <i>A Posteriori</i>	55
1. Necessary Statements of Identity	55
2. Against the Necessary <i>A Posteriori</i>	60
2.1. The "Easy Case" and Kripke's Thesis	60
2.2. An Objection to Kripke's Thesis: First Formulation	63
2.3. Reformulating the Objection	65
3. The 'Two-Propositions' Argument	68

Chapter 3. Propositional Concepts and Necessary <i>A Posteriori</i> Truths	77
1. Donnellan's Observation	77
2. Stalnaker's Analysis of 'Hesperus is Phosphorus' in 'Propositions'	80
2.1. Propositions as Sets of Possible Worlds	80
2.2. The 'Hesperus is Phosphorus' Case	82
3. Contexts, Propositional Concepts, and Two-Dimensional Operators	84
3.1. Contexts and the Determination of Truth Values	84
3.2. Propositional Concepts	86
3.3. Two-Dimensional Operators	89
4. Explaining the Possibility of Necessary <i>A Posteriori</i> Statements	101
4.1. Distinguishing <i>A Priority</i> and Necessity	101
4.2. Examining (T)	106
4.3. ' <i>A Priori</i> Propositions' as a Sentence-Relative Notion	110
4.4. The 'Hesperus is Phosphorus' Case Revisited	113
5. Why Quasi-Necessity?	120
6. Sentence-Relativity and Referring to a Proposition	129
Chapter 4. Indexicality, Rigidity, and Frame Relativity	134
1. Introduction	134
2. Formal Semantics, Indexicality, and Rigidity	136
2.1. Strategy	136
2.2. Extensional Model-Theoretic Semantics	141
2.3. Intensional Model-Theoretic Semantics	143
2.4. Indexical Semantics	147
2.5. Content and Character	151
2.6. Possible Worlds and Contexts	158
3. Are Names Really Indexical?	161
4. Frame Relativity	165
4.1. Characters of Names: Stable or Unstable?	165
4.2. Points of View — Frames of Reference	172
4.3. Frame Relativity and Indexicality	178
4.4. Frame of Reference and Propositional Concepts	182
Chapter 5. Singular Propositions	187
1. Singular Propositions, General Propositions, and Direct Reference	189
1.1. Two Characterizations of 'Direct Reference'	189
1.2. Senses and General Propositions	195

1.3. Singular Propositions and The Theory of Direct Reference	202
1.4. Singular Propositions and the Necessary <i>A Posteriori</i>	208
2. Salmon on Frege's Puzzle and Kripke's Thesis	210
2.1. The Naive Theory of Information Value	210
2.2. Frege's Puzzle and Salmon's Resolution	213
2.3. Salmon's Criticism of Kripke's Thesis	216
2.4. Salmon's Characterization of <i>A Priority</i>	219
3. The Orthodox Conception of the Nature of Propositions	222
3.1. The Fregean Conception	223
3.2. Russell's Conception	225
4. The Failure of Salmon's Criticism of Kripke's Thesis	229
4.1. Salmon's Unorthodox Conception	229
4.2. <i>A Priority</i> and Ways of Grasping a Proposition	231
4.3. Objections and Replies	237
4.4. A Final Remark	243
Appendix	244
References	252

Preface

This thesis is a study of some problems in recent philosophy of semantics, with special reference to the work of Saul Kripke and David Kaplan. In his classic article, 'Naming and Necessity' (1972) Saul Kripke claims that, given his view on reference, such identity statements as 'Hesperus is Phosphorus', which are constructed from two distinct but co-referential proper names, are examples of necessary *a posteriori* truths. I shall call this *Kripke's Thesis* (or *the Thesis*, for short). In this work, I attempt to defend this thesis by scrutinizing a web of philosophical problems surrounding it. I also hope that, by doing so, some issues arising from what is commonly called *the theory of direct reference*, of which Kripke and Kaplan are two of the major exponents, will also be clarified.

Kripke has advanced two other theses concerning the necessary *a posteriori*. One involves natural kind terms (i.e., species names like 'water', 'cat' and mass terms like 'water'), and the other has to do with theoretical identifications involving certain terms for natural phenomena (e.g., 'Heat is molecular motion'). And, according to some interpretations of 'Naming and Necessity', there is another thesis, which has to do with Kripke's view on the essentiality of origin. When I started my research in 1986, I believed that, compared with these other theses, Kripke's Thesis was much less problematic and was therefore an "easy case" of the necessary *a posteriori*. My reason was this: Kripke had already argued forcefully that, given his views on reference, a

proper name designates rigidly (that is, it designates the same object with respect to every possible world). From this, and given the way identity is handled in the orthodox-Kripkean semantics for modal logic, it follows that 'Hesperus is Phosphorus', if true, is necessarily true. Hence we obtain the 'modal-half' of Kripke's Thesis. And it would seem that nobody would argue against the other half, namely that 'Hesperus is Phosphorus' is *a posteriori*.

So I set myself the task of tackling the "difficult theses". I started by writing on the "easy case", only to get it out of the way. But soon I became intrigued by the following observation: while many discussions of and debates on Kripke's Thesis are couched in terms of propositions, there is in 'Naming and Necessity' neither an official doctrine concerning propositions nor any employment of the apparatus of propositions; on the other hand, however, talking in terms of propositions seems to allow one to construct a general and forceful argument against the Thesis that undoubtedly deserves serious consideration. This prompted me to study the argument more closely, and the more I studied the argument, the more I came to believe that Kripke's Thesis was by no means an easy case, as I had earlier thought.

I therefore decided to turn back and give closer study to the Thesis, no longer considering it an easy thesis, but rather a fundamental one concerning the necessary *a posteriori*. I started by setting out what I thought was the strongest version of the 'propositions-argument' against the Thesis. The central line of reasoning of this argument is as follows: given the Kripkean view on reference, and the unexceptional assumption that *the proposition* expressed by 'Hesperus is Hesperus' is *a priori*, it can be argued that 'Hesperus is Phosphorus' is also *a priori*, on the grounds that the Kripkean view on reference *entails* that 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' express the same proposition.

I was convinced that, in order to examine fruitfully and thoroughly this argument, it was necessary to put it in the context of some account of

propositions. I considered, of course, the classical-Fregean account, which is widely regarded as *the* account of propositions in contemporary analytic philosophy, especially when propositions are thought of as structured entities. Given the anti-Fregeanism in Kripke's theory of reference, however, I suspected that choosing the classical-Fregean account of propositions would be question-begging and thus methodologically unsound, even though some theorists who objected to the Thesis by employing some version of the 'propositions-argument' appear to have assumed, in one way or another, a classical-Fregean account. And as we see in the thesis, combining this argument with a Fregean account of propositions, or some of its doctrines, is a main flaw in these objections.

I thought, therefore, that it would be a good strategy to work within a possible-worlds account of propositions, which is a product of the contemporary possible-worlds semantics for modal logic and is due in large part to the work of Kripke. Among the works on possible-worlds semantics I consulted were Robert Stalnaker's on semantics and logical pragmatics. Inspired by some ideas in his work, as well as by an observation of Keith Donnellan's, I developed a two-dimensional sentence-relative account of *a priori* propositions. I believed that this account would give an explanation of the possibility of necessary *a posteriori* statements and would also undermine the 'propositions-argument' by rejecting its underlying assumption.

A central feature of this account is its employment of the Stalnakerian apparatus of 'propositional concepts', which involves the notion of a context-world. To substantiate this account, I found that I had to clarify some problems arising from the use of this apparatus and the notion of context dependence in general. In connection with this, I had long been puzzled by the question of how to square my account with Kaplan's contention that proper names have what he calls a stable *character*, which is a central notion in Kaplan's indexical semantics, and which bears some significant similarity to the notion of a propositional

concept. The more I studied this question, the more I came to appreciate its subtlety and its bearing on an important feature (which I later called 'frame relativity', after Harry Deutsch) of the semantics of proper names and reference-fixing. Thus I decided that some work on context dependence should be an integral part of my project.

While I was working on the topics just mentioned, I was at the same time puzzled by the position that Nathan Salmon holds in *Frege's Puzzle* (1986) concerning the Thesis. In this book, Salmon objects to Kripke's Thesis. His argument allegedly derives most of its force from his 'unorthodox conception' (vis-a-vis the Fregean orthodoxy) of propositions, according to which some propositions are *singular propositions*, that is, structured entities in which the only thing contributed by a proper name is the named individual. I found his position puzzling because I had come to believe by then that this conception should be the most congenial conception of propositions for those who hold the theory of direct reference, which Kripke and others pioneered. If this is correct, shouldn't one expect Salmon, a staunch proponent of *singular propositions* and the theory of direct reference, to be an upholder of the Thesis, or at least a sympathizer, rather than a critic? Besides, the heart of Salmon's book is a most advanced theory of semantic values in the new tradition of the theory of direct reference; so his criticism, presumably deriving from such a theory, is a serious matter for anyone concerned with Kripke's Thesis.

Accordingly, after examining Kripke's Thesis in the context of an unstructured (possible-worlds) account of propositions and finding that it withstood the challenge from the 'propositions-argument', I turned to the project of examining it in the context of a structured account of propositions. I became convinced of two things. The first was that Salmon's argument was but another version of the 'propositions-argument' involving the assumption rejected by my account. Second, and more significantly, I saw that Salmon cannot coherently hold that assumption, given his unorthodox conception of

propositions and his account of *ways of grasping a proposition*. Thus I believed that I knew how best to refute Salmon's argument, and also that such a refutation must be another integral part of my project.

The general structure of this thesis is more or less a reflection of the development of my views as outlined above. But instead of beginning by discussing directly Kripke's Thesis, in Chapter 1 I undertake to clarify some problems concerning the interpretation of Kripke's views on naming and reference, particularly those concerning *rigidity (rigid designation)*. Rigidity has received a great deal of philosophical attention since Kripke drew the distinction between rigid and non-rigid designators. But there are still many confusions surrounding it. I attempt to dispel some of these confusions, particularly those concerning the place of rigidity in Kripke's theory of naming. I argue that, contrary to what has been suggested by many readings of 'Naming and Necessity', Kripke's theory takes not rigidity, but rather *direct referentiality* as the fundamental trait of proper names.

In light of the discussion in Chapter 1, I establish, in the beginning of Chapter 2, the modal half of Kripke's Thesis, namely that, given that proper names are directly referential, 'Hesperus is Phosphorus' is a necessary truth. Then I introduce the 'propositions-argument' objection to Kripke's Thesis. The central claim of this objection is first formulated in terms of substitutivity of co-referential proper names, and then reformulated with reference to the epistemic status (*a priori, a posteriori*) of the *propositions* expressed by 'Hesperus is Phosphorus' and 'Hesperus is Hesperus'. To consolidate the objection, the 'two-propositions argument', as I refer to it, is advanced in order to forestall a possible line of response to the objection deriving from a suggestion by Alvin Plantinga.

The 'propositions-argument' is underpinned by an assumption that I call (T). According to (T), '*a posteriori*' and '*a priori*' apply primarily to propositions and only derivatively to sentences. But a recent brief remark made by

Donnellan, which suggested that '*a posteriori*' and '*a priori*' are *sentence sensitive*, casts doubt upon this assumption. Taking seriously Donnellan's observation and inspired by Stalnaker's treatment of 'it is *a priori* that' as a two-dimensional sentential operator, I develop, in Chapter 3, a two dimensional sentence-sensitive account of '*a priori* propositions'. This account draws on Stalnaker's notion of a propositional concept and exploits the idea of a possible world playing the role of context for an utterance. This account rejects (T) and thus gives an explanation of the possibility of necessary *a posteriori* propositions.

Chapter 4 takes up some problems that must be addressed if the two-dimensional account is to be taken seriously. The major concern of the Chapter is the concept of context dependence, which is fundamental to the two-dimensional account. This chapter addresses two questions. The first one concerns the compatibility of indexicality and rigidity. It arises from a central feature of the apparatus of propositional concepts employed by the two-dimensional account: that a proper name is regarded as capable of referring to different objects with respect to different *context-worlds*. This seems to suggest that the account treats proper names as some sort of indexicals whose reference may vary across possible worlds. Is this compatible with the Kripkean doctrine about the rigidity of proper names? My answer is positive. I argue that indexicality and rigidity are compatible. I draw heavily on some recent studies in formal semantics and particularly Kaplan's double-index semantics for indexicals. However, another, even more serious problem arises from this very attempt to solve the first problem by invoking the Kaplanian treatment of indexicals. On the one hand, according to Kaplan's semantic scheme, proper names are not indexicals, but, on the other hand, proper names, according to the two-dimensional account I have expounded, exhibit some kind of context dependence. How do we come to terms with these two seemingly opposed

observations? I answer this question by arguing that the purported context dependence of proper names can be explained in terms of *frame relativity*.

Chapter 5 is concerned with singular propositions. I aim to do two things. First, I attempt to make clear the exact link between 'singular propositions' and 'direct reference', since discussions in recent literature tend to run the two notions together. In doing so, I also look closely at the classical-Fregean conception of general propositions. This provides a useful foil for a detailed examination of Salmon's attempt to refute Kripke's Thesis, which is the second aim of the chapter. I argue that Salmon's attempt fails and that the source of his failure lies in his characterization of *a priority*. Some possible objections to my criticism are also considered and rejected.

There is an appendix to Chapter 5. After this work was finalized, I had the opportunity of seeing Salmon's very recent reply to an earlier and simpler version of my criticism in Chapter 5. In this appendix I comment on the main points of Salmon's reply.

A word on the format of the thesis. The thesis is divided into chapters. Each chapter is divided into sections, most of which are further divided into subsections. So there are two levels of section headings. Sections are numbered with Arabic numbers, e.g. 1, 2, 3, etc.; subsections are numbered decimally, e.g. 1.1, 1.2, 1.3, etc. For cross-reference, I use '\$' for both sections and subsections. For example, '\$4' and '\$3.1' read 'Section 4' and 'Subsection 3.1' respectively. More often than not, I divide a subsection (or a section without subsections) into parts, using bracketed numbers, such as [1], [2], and [3], without headings. I use them quite freely to break up a long discussion so as to facilitate understanding.

Chapter 1

Naming, Rigidity, and Direct Reference

'Naming and Necessity'¹ begins with the following sentences:

I hope that some people see some connection between the two topics in the title. If not, anyway, such connections will be developed in the course of these talks.

Naming and necessity, Kripke tells us, are connected. But how? Kripke's answer is distinctive and elegant: names designate rigidly. Indeed, *names are rigid designators* is one of the most well-known slogans in post-'Naming and Necessity' philosophy of language. There are, however, still many confusions and misunderstandings surrounding it.

This chapter concerns Kripke's theory of naming (or *picture of naming*, as he prefers to call it), but it is not my purpose to achieve a thorough exposition of that theory. Instead, my aim is to provide necessary background for the discussions in the following chapters by clarifying the above famous slogan and dispelling some of the confusions surrounding it. In particular I shall refute a quite common interpretation of 'Naming and Necessity', viz. the interpretation

¹Kripke 1972.

according to which *rigidity* is the *fundamental* notion of Kripke's theory of naming. The central claim I want to establish is that the fundamental notion of this theory is *direct reference*, not rigidity.

1. Is Rigidity the Key to Naming?

1.1. Genuine Naming Devices

[1] Traditionally and pre-theoretically it has been supposed by many that there is a kind of singular term which *names*, or serves as a *tag* of something, rather than *describes* it. This kind of singular term I shall call a *genuine naming device*¹ or *genuine name*. The simple and intuitive idea of genuine naming has found its way into various philosophical theories of singular reference, which elaborate the idea in various ways. Thus what genuine names are may differ from theory to theory.

In Mill's view, ordinary names are genuine names. More recently, Kripke's Mill-inspired view considers not only ordinary names but also natural kind terms (such as 'water' and 'tiger') as genuine names.

By contrast, in Russell's view, only 'logically proper names' are genuine naming devices. Ordinary proper names are "disguised" ("truncated", "concealed", or "abbreviated") descriptions;² and descriptions, according to Russell, are not semantically self-contained singular terms but incomplete symbols introduced by contextual definitions. For Frege, proper names (and in fact all singular terms) are also assimilated to descriptions. But Frege counted descriptions as genuine singular terms.

Despite the significant dissimilarity between the views of Russell and Frege, there is nevertheless considerable agreement between them concerning singular terms, and, in particular, ordinary names. And this area of agreement

¹'Genuine naming device' is the terminology of Joseph Almog . See Almog 1986.

²In this thesis, 'description' means 'definite description'.

constitutes the basis of what is commonly called *the description theory*. Proponents of this theory include Rudolf Carnap, Michael Dummett, Leonard Linsky, and John Searle.

On the description theory of (proper) names,¹ names are assimilated to descriptions. Like a description, a name denotes the object that uniquely satisfies the set of conditions (properties) semantically associated with it.² On a stronger version of the theory, not only names but all singular terms are assimilated to descriptions.

How does the tenability of the description theory bear on the intuitive notion of a genuine name? When negatively characterized, a *genuine name* is a singular term that *does not describe* (but *names*—whatever that may mean) something. The paradigm of a singular term that *describes* something, if any singular term can be said to do so, is the description. Indeed, even so briefly characterized as it was above, the description theory seems to spell out nicely the sense in which descriptions 'describe': a description 'describes' in the sense that it attributes a set of properties, namely the set of properties semantically associated with it, to the thing it denotes. Hence, if the description theory of proper names is right, proper names cannot be genuine names. And if the stronger version of the theory is right (viz. if all singular terms can be assimilated to descriptions), then the very notion of a genuine naming device will prove to be a vacuous one because descriptive denotation will then be the basic mode of singular designation.

However, the description theory of proper names, Kripke claims, is totally mistaken, and he aims to demolish it in 'Naming and Necessity'. Kripke's major objection, or so it seems to many commentators, is that names cannot be disguised descriptions since names are rigid designators, and

¹From now on, I shall in general use 'name' instead of 'ordinary proper name' and 'proper name'.

²This is only a very rough outline of the description theory, about which I say more in § 4.2 and §4.3 below.

descriptions are not.¹ (We shall see that such a construal of Kripke's objection is a dangerous oversimplification.)

[2] Emerging from Kripke's criticism of the description theory is a new theory of naming. According to many commentators, rigidity is the *fundamental* notion of this theory. A recent expression of this view can be found in Joseph Almog's 'Naming without Necessity'

Tradition has it that theories of naming should address the following key question:

Is there or is there not—among singular terms—a privileged subclass of such terms that, in some pre-theoretic sense, are genuine naming devices?

As I see the matter, Kripke gives a distinctive answer to this question. The genuine naming devices are what he calls "rigid designators."²

Rigid designation (that is, rigidity), as I shall explain shortly, is a modally oriented notion. So, according to Almog's reading of 'Naming and Necessity', Kripke offers us a theory of naming which '*subordinate[s]* the analysis of naming to considerations from the theory of necessity'³ and thereby has deep '*metaphysical involvement*'.⁴ Such a theory is wrong, Almog argues, because it forges a connection between *necessity* and *naming* that is much too intimate. Naming and necessity, Almog maintains, should not 'go hand in hand', and we 'simply cannot characterize naming by working backward from the dimension of necessity'⁵.

¹For example, Linsky writes, 'Kripke's *principal* thesis about proper names and descriptions is that *names are rigid designators* (names are always rigid designators); *descriptions generally are not rigid designators.*' Linsky 1977: 51. The first emphasis is mine.)

²Almog 1986: 210.

³*Ibid.*, 210. My italics.

⁴*Ibid.*, 226.

⁵*Ibid.*, 225.

Briefly, the reading Almog and many others¹ have in mind of 'Naming and Necessity' is this: (1) Kripke wants to give an answer to the key question of theories of naming by analysing proper names. (2) Subordinating his analysis to modal considerations, he concludes that proper names, in contrast to descriptions, are rigid designators. (3) So his answer to the key question is this: rigidity is the key to genuine naming.

I agree that if *this* reading of 'Naming and Necessity' is correct, then the theory of naming offered by Kripke is, arguably, very unsatisfactory. But, as we shall see, this reading is, if not entirely mistaken, one-sided at best. I contend that the *fundamental* trait of proper names, as established by Kripke in 'Naming and Necessity', is not rigidity. As a way of leading up to this contention, let us see what kind of trouble *the Kripke in Almog's reading* would seem to have brought upon himself.

As mentioned, pre-theoretically, describing is not naming. Therefore it seems desirable that an explication of the pre-theoretical concept of genuine naming devices should have this result: all definite descriptions are going to be ruled out as not being genuine names. So, if Kripke's answer to the key question is to be a correct one, then the 'fundamental trait' of names—rigidity—must distinguish names from descriptions. There are, however, considerations which show that rigidity does not distinguish names from descriptions, or at least, does not do the job of distinguishing them as nicely as Kripke would have thought. That is the trouble Kripke has *if Almog's reading* is correct.

These considerations are of two sorts. The first one concerns scope. The central idea is that the phenomenon of the rigidity of names is explainable in terms of the 'old notion of the scope of a term in modal context' (in Dummett's words). The other kind of consideration concerns rigid descriptions. It is argued

¹For example Frank Ebersole writes, 'According to Kripke, I believe, we can read John Stuart Mill as saying that proper names are rigid designators....Starting from proper names, Kripke could now give a general characterization of a rigid designator. *A rigid designator is a name.*' Ebersole 1982: 252, my emphasis.

that names cannot be *distinctively* rigid, in contrast to descriptions, because there are rigid descriptions.

In the next two sections, I shall look more closely at these considerations. But two remarks are necessary before we proceed.

(i) The first relates to Kripke's use of 'rigid designator'. An expression is rigid, according to Kripke, if it designates the same thing with respect to all possible worlds where that thing exists. To put this in the terminology of possible-worlds semantics, an expression is a rigid designator iff it is associated with an intension which is a constant function from possible worlds to extensions: given any possible world as argument, the function yields the same object as value.¹ Following R.M. Martin, we describe as a *flaccid designator* an expression that is associated with a function which may yield different objects as value with respect to different possible worlds.²

How are we supposed to tell whether a designator is rigid or flaccid? For this, Kripke offers us an 'intuitive test'. To test whether a designator *d* is rigid, we ask whether it makes any sense to say that *d* might have been different from what it in fact is, viz. might *not* have been *d*.³ If it does, it is flaccid; if it does not it is rigid. For example,

...the number of planets might have been different from what it in fact is. It doesn't make any sense, though, to say that nine might have been different from what it in fact is.⁴

So '9' is rigid and 'the number of planets' is flaccid.⁵

¹And this constant function may be a partial one when the object in question is a contingent existent; but see § 5 below.

²See Martin (1987:160). For the same purpose, McGinn (1982a) uses 'flexible designator' and Almog uses 'nonrigid designator' (1986).

³For simplicity, I am ignoring the 'use/mention' convention when I use '*d*'. Indeed, throughout this thesis, particularly where corner signs (quasi-quotes) would otherwise be used, I will ignore the convention if doing this is not likely to generate confusion.

⁴Kripke 1972: 48.

⁵In the text, Kripke does not say explicitly that '9' is rigid, but it is clear that his discussion on the difference between '9' and 'the number of planets' is meant to illustrate the 'intuitive test' for rigidity.

On the basis of this, I propose, following McGinn,¹ the following formulation of the intuitive criterion of rigidity: To see whether the candidate designator *a* is rigid or not, we insert *a* into the schema

a might *not* have been *a*

and ask ourselves if there is any *true* reading of the result. If there is, then *a* is flaccid; if not, then *a* is rigid. In terms of this formulation what Kripke meant to say about 'Nixon' and 'the President of the U.S. in 1970', in

'the President of the U.S. in 1970' designates a certain man, Nixon; but someone else (e.g., Humphrey) might have been the President in 1970, and Nixon might not have; so this designator is not rigid.

is this: while there is a reading according to which 'the President of the U.S. in 1970 might not have been the President of the U.S. in 1970' is true, there is no sense in which we may assert truly that Nixon might not have been Nixon. So 'Nixon' is rigid, and 'the President of the U.S. in 1970' is flaccid.

(ii) I have been making use, à la Almog, of the terminological device 'genuine naming' (from which 'genuine names' and 'genuine naming devices' derive). It must be pointed out, however, that 'genuine naming' is *not* an expression in Kripke's terminology. He uses 'naming' but not 'genuine naming'. I believe, however, that 'genuine naming' is a useful piece of terminology, although the term means no less and no more than what 'naming', as used by philosophers, usually does. 'Genuine naming' allows us to say of terms other than proper names that they are (or are not) *genuine naming devices*, without conveying a sense of oddity (or a sense of triviality), which we do not mean to convey, but which we would have been taken to convey if we had used 'names' rather than 'genuine names' or 'genuine naming devices'. I think it is because of similar considerations that Russell used 'logically proper names'—it might sound a bit odd to say that proper names are not *names* but 'this' and 'that' are,

¹McGinn 1982a: 98.

and a bit trivial to say that definite descriptions are not *names*. I could have used 'logically proper name', had the term not been heavily loaded with Russellian epistemology.

As I see the matter, Kripke believes that proper names are paradigms of genuine naming devices. Thus, despite the fact that Kripke has never used 'genuine naming devices', I think theorists like Almog are justified in thinking that Kripke, through his investigation of the fundamental trait of proper names, has provided an answer to the "key question" of what genuine naming devices are. (It is, of course, a separate question whether they are right as to what Kripke's answer is.)

1.2. Rigidity and Scope I

[1] Let us start with the *scope* problem. The problem about scope and rigidity was first raised by Dummett in his attempt to dismiss Kripke's refutation of the description theory.¹ But the issue of scope dates back to Russell's theory of (definite) descriptions. So I will start with a little bit of history to sketch the background.

According to Russell's theory, descriptions induce scope ambiguities. Consider, for example, the sentence

(1) The Q is not T,

where 'The Q' is any description, such as 'The author of *Waverley*' or 'The king of France', and 'T' is any predicate. According to the theory of descriptions,² (1) may be represented either as

¹See Dummett 1981: Appendix to Chapter 5.

²The theory, in a nutshell, is this. It consists of a contextual definition of the word 'the'. According to this theory, a simple statement containing a definite description, e.g. 'The author of *Waverley* is tall', can be analysed as asserting three things: (a) at least one individual authored *Waverley*, (b) at most one individual authored *Waverley*, and (c) that individual is tall. Taken together, these three assertions amount to the assertion that

$$(2) \quad \sim(\exists y) ((x) (Qx \leftrightarrow x = y) \& Ty),$$

or (more naturally) as

$$(3) \quad (\exists y) ((x) (Qx \leftrightarrow x = y) \& \sim Ty).$$

In (2) the description has a *narrow scope* (or *secondary occurrence*, as Russell calls it), whereas in (3) the description has a *wide scope* (or *primary occurrence*).

To indicate the scope ambiguity, we may use the Russellian scope operator, '[]', and represent (2) as¹

$$(4) \quad \sim[(\S x)(Qx)] T(\S x)(Qx).^2$$

It can also be demonstrated that (3), but *not* (4), entails

$$(5) \quad E!(\S x)(Qx).$$

(Read: 'The Q exists'³.) Thus, when 'the Q' is a *vacuous* (or *improper*) description—e.g. 'the King of France' or 'the round square'—(1) is false if the description is accorded wide scope and is true if the description is accorded a narrow scope. This particular case about negation illustrates that (in general)

- (d) There is a y such that (i) y authored Waverley and nothing-but-y authored Waverley, and (ii) y is tall.

But (i) is equivalent to,

For each thing x, 'authoring Waverley' is true of x if x is y, and false of x otherwise,

which can be symbolised as (where 'Q' represents the predicate of authoring *Waverley*):

$$(x) (Qx \leftrightarrow x=y);$$

hence, to say that 'The author of Waverley is tall' amounts to saying that (where 'T' is for 'is tall'):

$$(\exists y) ((x) (Qx \leftrightarrow x=y) \& Ty).$$

See Russell 1905 and 1920, also Quine 1972: 227.

¹Where the wide scope reading of (1), i.e. (3), can be represented as $[(\S x)(Qx)] \sim T(\S x)(Qx)$.

²It is usual in logic to write ' $(_x)$ ', with ' $_$ ' filled out by an inverted iota, to mean 'the object x such that'. In this thesis I use ' \S ' instead of an inverted iota.

³Formally, ' $E!(\S x)(Qx)$ ' is defined as ' $(\exists y)(x)(Qx \leftrightarrow x = y)$ '

statements containing descriptions may be interpreted as having non-equivalent logical structures.

Let us turn now to the issue of scope ambiguities for descriptions in modal contexts. As just observed, descriptions induce scope ambiguities with respect to, for example, the operator ' \sim '. In extensional contexts, this results in differences in truth values *only* when the descriptions are vacuous. But when the focus is shifted to non-extensional contexts, we shall find that the scope ambiguity induced by a description may result in differences in truth values even when the description is not vacuous. This point was first brought out by A. F. Smullyan in his criticism of Quine's objection to the intelligibility of quantification into modal contexts. In his famous paper 'Reference and Modality', Quine, the severest critic of quantified modal logic since its inception, argues that *quantifying into* modal contexts does not make sense. At the heart of Quine's argument is the principle of substitutivity: 'given a true statement of identity, one of its two terms may be substituted for the other in any true statement and the result will be true'.¹ This principle, an integral part of the classical theory of quantification that Quine embraces, seems to fail in the following case. Consider:

(6) 9 = the number of the planets,

(7) $\Box (9 > 7)$.

(6) asserts the identity between the number 9 and the number of the planets, and (7) asserts that necessarily 9 is greater than 7. Both are true. According to the principle of substitutivity, it would seem to be required that the statement (8) follows from (6) and (7)

(8) \Box (the number of the planets > 7)

¹Quine 1961: 139.

But (8), Quine thinks, is clearly false. So the principle appears to yield a false conclusion from true premises.

[2] Quine maintains that the failure shows that the modal context (also the contexts 'is unaware that....' and 'believe that...') *resembles* the quotational context in being *referentially opaque*. So '9' in (7) does not make genuine singular reference to the number 9. From this, it is easy to conclude that

$$(10) \quad (\exists x) \Box(x > 7)$$

is unintelligible. For given that '9' does not genuinely refer to 9 in (7), there will be no meaningful corresponding notion of objectual satisfaction, a notion which must be available if the quantified modal statement (10) is to make sense.¹ The existential generalization of (7) is therefore like quantifying into the quotational context:

'Cicero' contains six letters,

which would lead us to the absurdity:

$$(\exists x) ('x' \text{ contains six letters}).$$

In presenting his attack, it might be noted, Quine ignores the Russellian 'wide/narrow' distinction which applies, as mentioned, to descriptions. This, according to the objection raised by Smullyan, is a mistake. Represented by the

¹Perhaps it should be noted that there is another way of construing Quine's argument which involves the notion of Aristotelian essentialism. In brief, it is argued that (a) quantifying into modal contexts commits one to the metaphysical view that an object necessarily has a property in and of itself, but (b) this does not make sense—an object necessarily has a property only relative to a mode of specification: (e.g.) to be necessarily greater than 7 is not a trait of the number 9, but depends on the manner of referring to the number (Quine 1961: 148. See also Quine 1943 and 1947.) How to construe Quine's argument—particularly the connection between the principle of substitutivity, the notion of referential opacity and the notion of Aristotelian essentialism—is a quite tricky question. Different interpretations are available: for example Kit Fine (1989) maintains that in Quine's attack there are actually two arguments, each concerning a different problem, and this is quite different from Linsky's presentation in the introduction to his 1971 book (see also Linsky 1983: Ch. 6). See also Kaplan 1969. As far as our present purposes are concerned, we need not bother with such niceties here.

Russellian notation, (8) may be interpreted either as (where ‘ $(\S x)(Px)$ ’ means ‘the number of the planets’ and ‘ F ’ stands for ‘greater than 7’)

$$(11) \quad [(\S x)(Px)] \Box F(\S x)(Px),$$

or as

$$(12) \quad \Box [(\S x)(Px)] F(\S x)(Px).$$

The difference is the same as that between statements of the following forms¹

(11') The so-and-so satisfies the condition that it is necessary that Fx ,

and

(12') It is necessary that the so-and-so satisfies the condition that Fx .

Understood as (11), (8) contains a description with a wide scope and is a *true* assertion of necessity *de re*. In contrast, interpreted as (12), (8) contains a description with a narrow scope and is a *false* assertion of necessity *de dicto*. In Quine's argument, (8) is interpreted as (12) because he assumes that (8) is false. So interpreted, however, (8) does *not* follow from the premises (6) and (7). On the other hand, interpreted as (11), (8) does follow from the premises by substitutivity.² So Quine's argument, according to Smullyan, rests on a scope fallacy.

¹See Smullyan 1948: 35.

²Smullyan explains:

“The conclusion, (8) is of the form, (12') [as is required by Quine's argument in order to generate a paradox] and it does not follow logically from (7) and (6). Leibniz's law does not require that (7) and (6) entail (8). What Leibniz's law does permit us to infer from the premises (7) and (6) is the statement,

(f) As a matter of brute fact, the number of planets satisfies the condition that it is necessary that x is greater than 7.

It is to be noted that this sentence (f) is true, synthetic and not paradoxical. On the other hand, the statement (8) is not only incorrectly inferred from the premises, but is, moreover, logically impossible. For it is false, and, as we have already said, a false sentence which attributes necessity is *logically* false. [Here, Smullyan assumes that if not necessary, then necessarily not necessary.] We have just noted that (8) is of the form (12'), whereas the valid conclusion is of the form (11').”

To facilitate understanding, I now sketch a semi-formal account of how descriptions induce scope ambiguities (or, as it might just as well be called, *de re / de dicto* ambiguities) in modal contexts.¹

The account is based on possible-worlds semantics for modal logic. In this account, as we shall see, the difference between the narrow scope (or *de dicto*) reading and the wide scope (or *de re*) reading of a description in modal contexts is a matter of alternative evaluation procedures—with respect to the relevant set of alternative possible worlds—for formulae containing the description.

Consider $\Box T(\$x)(Qx)$, where T is a primitive predicate.² In possible-worlds semantics, each formula is evaluated with respect to each possible world. So let us evaluate $\Box T(\$x)(Qx)$ at a possible world w . There are two different evaluation procedures, the *de dicto* procedure and the *de re* procedure, corresponding to the two readings of $\Box T(\$x)(Qx)$: $\Box [(\$x)(Qx)]T(\$x)(Qx)$ and $[(\$x)(Qx)]\Box T(\$x)(Qx)$ respectively.

Let us consider first the procedure (*de dicto*) for evaluating $\Box [(\$x)(Qx)]T(\$x)(Qx)$ at w . We first evaluate $T(\$x)(Qx)$ at w . To do this, we need to find the unique object which is Q in w and see if it is in the extension of T at w . If it is, then $T(\$x)(Qx)$ is true at w ; otherwise, $T(\$x)(Qx)$ is false at w . Then we *repeat* this procedure at every other possible world. If $T(\$x)(Qx)$ turns out to be true at every world, then $\Box [(\$x)(Qx)]T(\$x)(Qx)$ is true at w .

(See Smullyan 1948: 36. I have used my numbering, and replaced Smullyan's 'less than 10' with 'greater than 7'.) Quine, however, thinks that Smullyan's argument begs the question. For to make sense of a Russellian reading of (11') requires quantifying into a non-substitutive position. See Quine's remark in Davidson and Hintikka 1969: 338ff. But I shall not go further into the debate here.

¹This account is basically the same as Linsky's account for the *de re/de dicto* distinction in Linsky 1977: 56-59. But in his account Linsky treats descriptions as genuine singular terms rather than (as for Russell) incomplete symbols.

²Here I use ' $\Box T(\$x)(Qx)$ ' to stand, ambiguously, for either the wide scope reading, ' $[(\$x)(Qx)]\Box T(\$x)(Qx)$ ', or the narrow scope reading, ' $\Box [(\$x)(Qx)]T(\$x)(Qx)$ '. Thus $\Box T(\$x)(Qx)$ is not a well-formed formula.

Contrast this to the procedure (*de re*) for evaluating $[(\exists x)(Qx)] \Box T(\exists x)(Qx)$ at w . We first evaluate $T(\exists x)(Qx)$ at w in exactly the same way as in the *de dicto* case. But, thereafter, we need not repeat, at every other possible world, the procedure of finding the unique object which is Q . Instead, we trace the unique object which we found to be Q at w —call it O —to each other possible world and see if it is in the extension of T at that world. If O is in the extension of T at every world, then $[(\exists x)(Qx)] \Box T(\exists x)(Qx)$ is true at w .

[3] Against this background, let us examine Kripke's thesis that proper names are rigid designators. Kripke draws our attention to the following difference between proper names and definite descriptions: while there is a clear sense in which it is true to say, for example, 'The U.S. President in 1970 might not have been the U.S. President in 1970', it is *not* so for 'Nixon might not have been Nixon'. In other words, the point generally put is that proper names satisfy the intuitive criterion for rigidity, but descriptions do not.

Given the above remarks on scope, we can see that a sentence such as 'The U.S. President in 1970 might not have been the U.S. President in 1970' may be interpreted in more than one way.

- (a) We may read both occurrences of the description 'the U.S. President in 1970' as having a wide scope and evaluate them according to the *de re* evaluation procedure for descriptions given above.
- (b) Or we may accord a narrow scope to both occurrences and adopt the *de dicto* procedure for evaluating them.

The sentence 'The U.S. President in 1970 might not have been the U.S. President in 1970', evidently, is false on both readings.

Of course, there is the possibility of reading the two occurrences with different scopes:

- (c) We may accord a wide scope to the first occurrence but a narrow scope to the second (or vice versa), and, accordingly,

employ both the *de re* evaluation procedure and the *de dicto* procedure.

On this reading, the sentence, with the first (wide scope) occurrence of the description eliminated, may be written as (if we adopt the Russellian analysis of description and let 'P' stand for the property of being the U.S. President in 1970):

$$(\exists y) ((x)(Px \leftrightarrow x = y) \ \& \ \diamond [(\exists x)(Px) \ (y \neq (\exists x)(Px))]).$$

Eliminating the (narrow scope) description still left, we obtain:

$$(\exists y) ((x) (Px \leftrightarrow x = y) \ \& \ \diamond (\exists z)((x) (Px \leftrightarrow x = z) \ \& \ (y \neq z)))$$

which is true. And it is in this sense that Kripke means to assert that 'someone else other than the U.S. President might have been the U.S. President'.¹

Now, it seems that the description theory can accommodate Kripke's view about the rigidity of names by reducing the view to one about scope. To see this, it may be noted, first, that according to the description theory,

(13) Nixon might not have been Nixon

has the same form as 'The U.S. President in 1970 might not have been the U.S. President in 1970', and thus is subject to scope ambiguities.

Second, according to the preceding analysis, if (13) is to have a truth value consistent with Kripke's modal intuition (i.e. that it is false), it must be read either as

(i) containing two occurrences of a (disguised) description with a wide scope,

or as

(ii) containing two occurrences of a (disguised) description with a narrow scope.

¹Kripke 1972: 48.

Let us call the former an (a)-type reading (which corresponds to (a) above) and the latter a (b)-type reading (which corresponds to (b) above).

Third, evidently the (b)-type reading is inconsistent with another aspect of Kripke's modal intuition. Kripke claims that it is not necessary that Nixon is P (let $(\exists x)(Px)$ be what would be regarded by the description theorist as the "underlying" description that abbreviates 'Nixon'). This claim will be false if names are read with a narrow scope in the context of a sentence. So we are left with the (a)-type reading, which treats (each occurrence of the underlying description of) a name as having a wide scope.

[4] Now, it seems that the description theorists can say that Kripke's intuition is but an intuition concerning scope-reading in natural language. What Kripke's intuition (if it is correct) reveals, they can say, is simply the following: that in natural language there is a tacit convention governing the scope-reading of names, and, according to this convention, a name embedded in a sentence should be read with a wide scope so that all modal operators will fall inside its scope. Thus, Kripke's thesis that proper names are rigid designators, they may conclude, 'concerns nothing other than our old notion of the scope of a term in modal context'.¹

To see the bearing of all this on the issue of the connection between rigidity and naming, it is enough to note the following.

If the scope theorist is right, then Kripke's modal argument against the assimilation of names to descriptions will be undermined. Briefly, according to that argument, for any description 'the P ', it is possible that Nixon does not have p , where p is the property expressed by ' P '.² This precludes 'Nixon' ever being equivalent in meaning to a description. But from the scope theorist's point of view, this is all because 'Nixon' is read with a wide scope. Read 'the P ' in the

¹Dummett 1981: 127.

²Except when p is the 'haecceity' of Nixon. See the next section (§1.3). See also §4.3: [2] below for a sharper formulation of the argument.

same way and you will find that it is also possible that the P does not have *p*. So Kripke's consideration cannot block the description theorist's attempt to assimilate names to descriptions. But if names could be assimilated to descriptions, then—despite there being tacit conventions governing their interaction with modal operators—names would nevertheless designate by way of satisfaction of conditions. And the adoption of a convention to accord a wide scope to a certain category of 'disguised descriptions' should not turn this category into the privileged subclass of designators that deserve to be called 'genuine naming devices'. Furthermore, given the assumption that names are typical genuine naming devices, if anything is, a more drastic conclusion follows: that there is *no* such thing as genuine naming, as distinct from (descriptive) denoting.

1.3. Rigid Descriptions

There is another, more direct consideration which seems to show that we cannot distinguish the class of proper names and the class of descriptions in terms of rigidity. It is the consideration concerning rigid descriptions.

Suppose there are such things as essences; viz. there is a kind of property such that if *x* has it, it has it *essentially* and *uniquely*. As there seems no reason to think that the notion of rigidity should be incompatible with the doctrine of essence, we can incorporate such a property in a description and obtain a rigid description. For example, 'the individual who has the property of being Nixon'¹ will designate the same person, i.e. Nixon, in all possible worlds. But a rigid description generated in this way, one might argue, does not constitute a real threat to the thesis that rigidity distinguishes names from descriptions; as the rigidity of the description depends precisely on the rigidity of the name it

¹This is basically the same as what may be called the 'haecceity' of Nixon, i.e. the property of 'thisness' of Nixon, as expressible by an open formula like '*x* = Nixon'. See Adams 1979.

contains. Better examples, however, do not seem difficult to find. Consider the description 'the smallest prime'. Is there a reading according to which

The smallest prime might not have been the smallest prime

is true? How can we imagine that the smallest prime, i.e. the number 2, might not have the property of being the smallest prime? It might have been the case that we used the numeral '3' to designate the number 2. But that is irrelevant because, as Kripke himself never tires of reminding us, the question whether *a* might have not been *a* should be distinguished from the question whether the expression '*a*' might not have been used to designate *a*. On the other hand, it seems very difficult to deny that the smallest prime, i.e. the number two, has as its *essence* being the smallest prime—if we allow that it makes sense to speak of essences. So 'the smallest prime' passes the intuitive test, and is thus a *rigid description*.

Of course, you may deny that *being the smallest prime* is an essence (though I think it is a paradigm of an essence, if anything is). But that is not important. So long as you do not object to the notion of an essence, you may generate rigid descriptions on the basis of the particular theory of essence you prefer. So rigidity will not distinguish names from descriptions, and accordingly it will not do as (in Almog's words) '*theoretical codification* of the idea of a genuine naming device'.¹

(In this connection, one might be inclined to point to another kind of example of a rigid description which is connected to some doctrines in 'Naming and Necessity'.² These are examples derived from Kripke's own essentialist view about the necessity of origin. Kripke argues that Elizabeth II, being a child of George and Elizabeth Windsor, is essentially the child of George and Elizabeth

¹Almog 1986: 222.

²Kripke 1971: 153; 1972: 110-115.

Windsor. The general claim is that an organism could not have had a different origin from its actual one.

The doctrine is sometimes interpreted as one concerning individual essence, in which case it is possible to generate such a rigid description as 'the offspring of zygote G' on the basis of the doctrine. For example, Almog says

Suppose we evaluate, at some counterfactual situation w , 'the x who is offspring of [zygote] G'. That is, we shall have to find an individual of w who is the offspring of G. And [given that Nixon is the actual offspring of G] it is only Nixon who could [be this individual] (assuming, of course, Kripke's views on origin).¹

But I have doubts as to whether Kripke's doctrine is one concerning individual essence. All Kripke has argued is this: it is impossible that (for example) Nixon be born of a different zygote. In other words, according to Kripke, being the offspring of zygote G is an essential property of Nixon, which he cannot fail to have in any world in which he exists. This claim seems to leave it open whether in a possible world where Nixon does not exist an organism distinct from him would have its origin in zygote G.² Hence, given that Nixon is the offspring of

¹Almog 1986: 221. It should be noted that this passage is part of an argument which Almog has put forward to show the failure of the neo-Fregean's attempt to simulate names by means of modally stable descriptions. But I have quoted it to illustrate how widely it has been assumed that Kripke's view on the necessity of origin is a view concerning individual essence and entails the rigidity of such descriptions as 'the offspring of zygote G'.

²Formally, we may spell out Kripke's claim thus:

$$(K) \quad \Box(x) \Box(y) \Box(Z(x, y) \rightarrow \Box(E(y) \rightarrow Z(x, y))).$$

(Here 'Z(x, y)' reads 'y has its origin in zygote x', and 'E(y)' reads 'y exists'.) This is an instance of Forbes's essentialist schema (S), a simplified version of which is

$$(S) \quad \Box(v) \Box ((C(v) \ \& \ A(v)) \rightarrow \Box(E(v) \rightarrow A(v))),$$

where 'C' is a category of things to whose members we wish to attribute the essential property A. (Forbes 1985: 97.) Roughly, an instance of (S) attributes an essential property by saying that, for any possible object which is of a certain category in some possible world, if that thing has a certain property at that world, then at every world where that thing exists, it has that property. See Forbes 1985: Ch. 5, which is a detailed discussion of the necessity of origin.

G, it does not seem to follow from Kripke's view that 'the offspring of zygote G' must have the same designation across possible worlds.¹⁾

2. The *De Jure / De Facto* Distinction

In the last section, I presented a quite common reading of 'Naming and Necessity', according to which the central idea of Kripke's view on naming is that rigidity is the fundamental trait of genuine naming devices. Then I outlined some problems with this idea. At this point, I would like to introduce a distinction which will shed some light on these problems.

[1] There are reasons, as we have seen, to think that some descriptions designate rigidly, i.e., that they have constant intensions (as functions from possible worlds to extensions). Now, consider again the description 'the smallest prime'. In virtue of what, we may ask, does the description 'the smallest prime', have a constant intension? As we have seen, a plausible answer may be that the property of being the smallest prime is an individual essence which an object can only have necessarily and uniquely. The description 'the smallest prime' is rigid precisely because it expresses a condition or sense which attributes an essence to an object.

The rigidity of such a description as 'the smallest prime', according to the above explanation, has a metaphysical source. It is therefore not a purely semantic matter. Of course, that 'the smallest prime' designates the number 2 rather than anything else is due *in part* to the semantic rules governing the expressions 'smallest', 'the' and so on. But this is not the whole story. The

¹Unless we assume a principle (parallel to what Forbes calls 'Propagule Indiscernibility', Forbes 1985: 146) which enables us to claim that if different organisms at different worlds have the same origin, then the two organisms are actually one and the same individual. But, as Forbes points out, such a principle presupposes something like the scholastic notion of 'bare individual'. Certainly neither such a principle nor such a notion is part of Kripke's doctrine. For discussions on the necessity of origin, see Forbes 1980, McGinn 1976a, Salmon 1982: Ch. 7; also relevant are Wiggins 1974 and 1980.

description *turns out* to be rigid, according to the above explanation, as a result of the semantic rules of the language *and* the non-linguistic fact that the number 2 can be identified across worlds by some property (or properties).

The same story, however, cannot be told about the rigidity of names. In Kripke's view, a name does not refer by way of the referent's satisfying some set of conditions, let alone one with metaphysical import. Indeed, the rigidity of names, according to Kripke, is a consequence of the semantic rules of language alone.

[2] This important difference with respect to the source of rigidity is, however, not reflected by Kripke's definition of rigidity. Recall that he defines 'rigidity' in terms of 'constant designation': an expression is rigid iff it is associated with a constant function from possible worlds to extensions (denotations). The question 'In virtue of what has an expression a constant intension?' is therefore irrelevant to the question whether the expression is rigid. It is, then, small wonder that rigidity fails to distinguish names and descriptions. For rigidity, by Kripke's definition, is not distinctive of names—descriptions which attribute individual essence to an object are also rigid.

Kripke himself also recognized this, though a bit belatedly. In his preface to the book edition of 'Naming and Necessity', he draws the distinction

between '*de jure*' rigidity, where the reference of a designator is stipulated to be a single object, whether we are speaking of the actual world or of a counterfactual situation, and mere '*de facto*' rigidity, where a description 'the x such that Fx ' happens to use a predicate ' F ' that in each possible world is true of one and the same unique object (e.g., 'the smallest prime' rigidly designates the number two).¹

Having drawn this distinction, Kripke adds this important remark: 'Clearly my thesis about names is that they are rigid *de jure*.'² With the *de jure* / *de facto*

¹Kripke 1980: 21, note 21.

²*Ibid.*

distinction Kripke distinguishes the two sorts of cases we touched upon above: expressions (e.g., 'the smallest prime') whose rigidity is due to metaphysical facts and expressions (e.g., proper names) that are rigid purely in virtue of the semantic stipulations of the language.

In light of this distinction, let us look again at the problem concerning rigid descriptions. We have seen that the original definition of 'rigid designator' covers not only names but also descriptions such as 'the smallest prime'. With the notion of *de jure* rigidity, we can now *filter out* these descriptions by construing 'rigid designators' as '*de jure* rigid designators'. (This is not a purely *ad hoc* or question-begging move because we have seen that there is a substantial difference between the two kinds of rigidity.)

Recall that, according to Almog's reading of 'Naming and Necessity', Kripke is pictured as holding the thesis that the fundamental trait of genuine naming devices is rigidity. With the *de jure* device, we may now reformulate this thesis in this way: *the fundamental trait of genuine naming devices is de jure rigidity*. Likewise, the picture which I said those who subscribe to this reading have in their minds may now be put as follows. (1) Kripke wants to give an answer to the key question of theories of naming by analysing proper names. (2) Subordinating his analysis to modal considerations, he concludes that proper names, in contrast to descriptions, are rigid designators. (3) So his answer to the key question is this: *de jure* rigidity is the key to genuine naming.

3. Rigidity and Scope II

What bearing does the *de jure* / *de facto* distinction have on the problem about scope and rigidity?

[1] Let us consider *de facto* rigidity first. Recall Dummett's suggestion that Kripke's intuition about rigidity can be explained by considerations concerning scope, namely that there is nothing more to the notion of rigidity than a

linguistic tendency, or tacit convention, to assign wide scope to the description in question. Such a suggestion, however, seems implausible in regard to *de facto* rigidity. We have seen that a (*de facto*) rigid description has a modally stable designation in virtue of attributing individual essence to an object. For example, our judgement that 'the smallest prime' is rigid derives from some modal intuitions about the *individual essence* of a number. If we follow Dummett's suggestion, however, we will have to maintain that such modal intuitions rest upon a tacit convention to give the description a wide scope. But this seems incredible. Indeed, the scope interpretation of rigidity seems, at least in the *de facto* case, so preposterous that McGinn likens it to the absurd suggestion that 'we judge a sentence necessarily true because we have a convention to give it (the sentence) wide scope with respect to some modal operator'.¹

To illustrate this point, consider the following *language game*. It is conceivable that we should be speaking a language, L, which is exactly like English except that it contains *no* modal operators. In such a language we can find both (a) "ordinary" descriptions such as 'the inventor of bifocals', 'the tallest spy', which are considered flaccid, and (b) descriptions which Kripke would regard as *de facto* rigid, for example, 'the smallest prime'. Next suppose that we are to give a semantic interpretation of the descriptions in terms of the assignment of functions from possible worlds to extensions. If Kripke's modal intuition concerning 'the smallest prime' is correct, then, in contrast to the "ordinary descriptions", 'the smallest prime' must be assigned constant reference across possible worlds. It is very hard to see how we can possibly explain the stable reference of 'the smallest prime' in terms of its interaction with modal operators when L does not contain the operators. If *de facto* rigidity is nothing more than the convention to give a description wide scope with respect to modal operators, then there can be no distinction between the two

¹McGinn 1982a: 111.

kinds of descriptions in L. Hence, given the possibility of there being a language such as L, the scope interpretation cannot be right.¹

[2] The gist of this argument is that there is a modal contrast between ordinary descriptions and *de facto* rigid descriptions *prior* to any interaction these descriptions may have with any scope operator. Presumably the contrast arises from the metaphysical speculation that a description of the latter, but not the former, kind attributes an individual essence to an object. But what about *de jure* rigid expressions, such as names, whose rigidity, presumably, does not depend on metaphysical speculations? The following remarks by Kripke can be regarded as his answer to the question.

[The idea] that the doctrine of rigidity simply *is* the doctrine that natural language has a convention that a name, in the context of any sentence, should be read with a large scope including all modal operators is particularly wide of the mark; in terms of modal logic, it represents a technical error. Let me deal with it first. (1) [= 'Aristotle was fond of dogs'] and (2) [= 'The last great philosopher of antiquity was fond of dogs'] are 'simple' sentences. Neither contains modal or other operators, so there is no room for any scope distinctions. No scope convention about more complex sentences affects the interpretation of *these* sentences. Yet the issue of rigidity makes sense as applied to both. My view is that 'Aristotle' in (1) is rigid, but 'the last great philosopher of antiquity' in (2) is not. No hypothesis about scope conventions for modal contexts expresses this view; it is a doctrine about the truth conditions, with respect to counterfactual situations, of (the propositions expressed by) *all* sentences, including *simple* sentences.

This shows that the view that reduces rigidity to scope in the manner stated is simply in error...The doctrine of rigidity supposes that a painting or picture purporting to represent a situation correctly described by (1) must *ipso facto* purport to depict Aristotle himself as fond of dogs. No picture, purporting to represent someone else and

¹See Smith 1984 and McGinn 1982a for similar 'language games' approaches to the scope problem.

his fondness for dogs, even if it depicts the other individual as possessing all the properties we use to identify Aristotle, represents a counterfactual situation correctly described by (1). Doesn't this, in itself, obviously represent our intuitions regarding (1)? The situation is about the truth conditions, in counterfactual situations, of (the proposition expressed by) a *simple* sentence.¹

The point Kripke is pressing is that we have a *direct* intuition about the rigidity of names, exhibited in our understanding of the truth conditions of simple sentences, where there are no operators of any kind (not even tense operators as we may take the sentences to be tenseless²) that generate scope distinctions. The sentence 'Aristotle was fond of dogs' (which we suppose to be, as a matter of fact, false), for example, might have been true with respect to some counterfactual situation, or some possible history of our world. In other words, we may say that the sentence expresses a possible state of affairs, or, a proposition. Whether a certain counterfactual situation is one in which this possible state of affairs obtains, depends on the possession of a certain property of the *individual* Aristotle had in that situation. Such an intuition about 'Aristotle', according to Kripke, cannot be reduced to conventions about scope distinctions.

Given Kripke's distinction between *de facto/de jure* and his view that names are *de jure* rigid, this argument may be regarded as one against the scope interpretation of *de jure* rigidity. It is quite similar to the earlier argument regarding *de facto* rigidity: where the earlier argument involves intuitions arising from metaphysical speculation about individual essences, this argument relies on some *direct* modal intuitions.

Again, a language-game may be used to illustrate the point. Imagine that we add to our language an explicit narrow scope convention (perhaps, as suggested by Kripke, by inserting a colon after the 'that' in, say, 'It might have been the case that...') so that all sentences describing counterfactual situations

¹Kripke 1980: 11-12.

²See *ibid*, 11, note 14.

will be explicitly construed with narrow scopes. Since 'It might have been the case that: Aristotle was not a philosopher' expresses a truth, while 'It might have been the case that: the last great philosopher of antiquity was not a philosopher' expresses a falsehood, there would still be a contrast between, 'Aristotle' and 'the last great philosopher of antiquity'¹ in point of constant reference across possible worlds. Thus, the rigidity of 'Aristotle' does not seem to arise from a tendency to give 'Aristotle' a wide scope reading while the description is given a narrow scope reading.²

Last, the scope interpretation is also open to another challenge. A modal sentence containing a name, for the scope theorist, really has two readings. But why can we not, as it were, "hear" the narrow scope reading?

[3] Kripke's opponents, however, might find the above objections not convincing enough, for the following reasons.

First, the very coherence of the language game L seems dubious. It was assumed that L is like English in containing both ordinary descriptions and *de facto* rigid descriptions, from which it was argued that a semantics for L should assign stable functions (from possible worlds to denotations) to the latter kind of descriptions. But if L, *ex hypothesis*, is a non-modal language, what are the grounds for holding that its speakers should recognize the modal difference between 'the shortest spy' and 'the smallest prime', while such a difference is, supposedly, inexpressible in L?

Second, if the speakers of L really do not appreciate whether a description is rigid, it is doubtful that they understand the descriptions in the same way we do. And if they understand the descriptions differently, then what justifies the demand that a semantics for L should assign a stable reference to 'the smallest prime'?

¹Let us pretend that 'the last great philosopher of antiquity' would be regarded by a descriptionist as a description that abbreviates 'Aristotle'.

²See Kripke 1980: 13.

Last, it seems doubtful that Kripke's intuitions concerning simple sentences could exist without his background knowledge about how these sentences behave in complex constructions containing modal operators. That is, it may be argued that what Kripke says about simple sentences is simply 'a sloppy way of expressing modal truth'.¹ Indeed, his argument involves such concepts as '*possible states of affair*', '*counterfactual situation*', the appreciation of which may well presuppose the logical behaviour of complex sentences with modal operators such as 'It would be the case that...'

[4] Having reached something of a stalemate here, the following observation deserves our attention.² Suppose the description theorist is right in thinking that names can be assimilated to descriptions and that their rigidity is simply a matter of scope ambiguities. If this is so, then names can be regarded as functioning like quantifiers do. For according to the usual treatment, descriptions function more or less like quantifiers. They "bind" variables. The variables "bound by a description" may either occur *inside* or outside the scope of the modal operator, when the description occurs in complex constructions involving the operator. According to the orthodox-Kripkean semantics for modal logic, however, it is arguable that the variable under an assignment is a paradigm of rigid designation. If this is the case, it is hard to see how one can analyse the rigidity of variables in terms of scope-reading with respect to modal operators. Thus Dummett's approach only eliminates one kind of rigidity by bringing into being another kind of rigidity.

This observation, I think, is an important one and has put the scope theorist in a very difficult position. But Kripke's view, interpreted in accordance with Almog's reading of 'Naming and Necessity', still has another problem.

¹See Smith 1984: 185. See also Paul Yu 1980.

²This observation is due to McGinn. See McGinn 1982a: 113. I shall substantiate it with further discussion on individual variables in Section 5 below.

We saw earlier how some rigid descriptions were filtered out by the “*de jure*-filter”. Almog contends, however, that the *de jure*-filter is, nevertheless, ineffective and does not capture the intended class of genuine naming devices. He asks us to consider

an arbitrary predicate ‘F’ with uniqueness built in. Next, prefix the adjective ‘actual’ to ‘F’. Whatever ‘F’ signifies, ‘the actual F’ is rigid in virtue of the semantical rules of the language, in virtue of the truth conditions stipulated for all formulas containing ‘actual’.¹

According to this observation,² while the *de facto* modal stability of the denotation of ‘the smallest prime’ is due to some metaphysical fact concerning individual essences, semantic stipulations *alone* account sufficiently for the stability in the case of ‘the actual tallest spy’, which is therefore *de jure* rigid. Thus, in contrast to descriptions, names are not distinctively rigid.

Almog’s *diagnosis* is that the *de jure* filter is ineffective because the notion of *de jure* rigidity ‘still analyzes naming in terms of the supposedly prior notion of necessity’.³ His conclusion: ‘We simply cannot characterize naming by working backward from the dimension of necessity’.⁴

I agree with Almog that no satisfactory characterization of naming can be obtained as a result of subordinating the analysis of naming to considerations of necessity. But I do not think that Kripke’s theory of naming in ‘Naming and Necessity’ is in the main a backward manoeuvre from metaphysics to semantics. Nor do I agree that rigidity is as fundamental in Kripke’s theory as Almog and others think. The fundamental notion in ‘Naming and Necessity’, I am going to argue, is ‘direct reference’⁵, and the rigidity of names is a consequence of their direct-referentiality. Recognition of this, I believe, is crucial to the whole issue of

¹Almog 1986: 223.

²McGinn (1982a) also regards ‘the actual F’ as *de jure* rigid. On the rigidity of “actualized” description, see also Kitcher 1980.

³See Almog 1982: 225.

⁴*Ibid.*

⁵But the term ‘direct reference’ is due to David Kaplan. More on this later.

naming and rigidity. In the next section I shall make this point clear with an examination of Kripke's arguments against the description theory.

4. Kripke's Refutation of the Description Theory

4.1. *The Millian View of Names*

A word on the Millian view of names¹ appears in order. In the first place, one must note a very important distinction made by Mill—the distinction between connotative terms and non-connotative terms. A connotative term is one 'which denotes a subject, and implies an attribute', where a non-connotative term is one 'which signifies a subject only, or an attribute only'.² For Mill,

the only names of objects which connote nothing are proper names; and they, strictly speaking, have no signification;

proper names are not connotative: they denote the individuals who are called by them; but they do not indicate or imply any attributes as belonging to those individuals;

proper names are attached to the objects themselves, and are not dependent on the continuance of any attribute of the objects.³

In contrast, general (or common) terms (i.e., in Mill's terminology, *general names*) like 'horse' and 'man' are connotative terms.

Mill's non-connotative view about (proper) names sharply disagrees with the quite common view that (proper) names designate objects on the basis of the objects' possession of certain properties. Linsky, who is sympathetic to the latter

¹A terminological remark: Mill's use of 'name' covers a number of different sorts of expressions, as reflected by the distinction he makes among 'names': for example, in contrast with individual (or singular) names (e.g. 'John', 'the king'), there are general names (e.g. 'man'), and in contrast with concrete names (e.g. 'John', 'the sea', 'white', 'old'), there are abstract names (e.g. 'whiteness', 'old age'). When I speak of *Mill's view (intuition) about names*, I mean, of course, only proper names.

²Mill 1879: 65. Mill also notes, 'By a subject is here meant anything which possesses attributes'. (*Ibid.*)

³*Ibid.*, 67, 66, 66.

view, has tried to settle the disagreement by dismissing the contrast Mill makes between proper names and common names:

Common names, for Mill, have both connotation and denotation. Thus 'horse' connotes certain properties, and the name 'horse' denotes the things that have those properties. By contrast, proper names have no connotations; they do not denote in virtue of the possession of certain properties by their denotations, but, so to speak, directly. Thus Socrates received his name by being dubbed 'Socrates'; and he might just as well have been given any other name.

This contrast is misleading. After all, we might have named horses by another name, too; e.g., 'cow' or 'pferd'. However, once the convention by which they are called 'horses' is established, it is not correct to call them 'cows'. A horse is not a cow. Just so, Socrates could have been named 'Plato' or 'Moses', but, once he has been named 'Socrates', it is just as wrong to call him 'Plato' as it is to call a horse a 'cow'. What is correctly called a 'horse' is so called in virtue of its possession of certain properties, just as what is called 'Socrates' is so called in virtue of *his* possession of the requisite properties. From this point of view, proper names are words like any others.¹

In agreement with John Tienson,² I think what is misleading is Linsky's own remark, rather than Mill's contrast. He simply misses the point of the contrast. It is true, and quite trivially so, that, as Linsky says, once the relevant conventions are established, it is as incorrect to call Socrates 'Plato' as to call a horse a 'cow'. And from this trivial point of view, not only is it true that proper names are like any other words, but, moreover, that any expression is like any other. You cannot use an expression governed by conventions correctly and flout the rule at the same time. But I cannot see why a name is *therefore* like a general term in the sense that they both apply to things in virtue of their possession of some requisite properties.

¹Linsky 1983: 16-17.

²See Tienson 1986.

The point of Mill's contrast is not that you can, in violation of established conventions, call Socrates any name you like and still be speaking correctly. The point is rather that the kind of convention by which Socrates is called 'Socrates' and the kind of convention by which horses are called 'horses' are fundamentally different. Properties play an important role in the conventions governing general terms. A general term, say 'man', applies to Socrates in virtue of his having some properties which he has in common with other men. The 'subject', in Mill's terminology, denoted by 'man' is anything that possesses the relevant properties. In contrast, why is it correct to call Socrates 'Socrates'? It is not because Socrates possesses some relevant properties. Rather it is, according to Mill, simply because 'Socrates' is a name he was *given*.¹ Thus there is a genuine disagreement between the Millian view and the common view. Linsky's observation does not disprove Mill's view.

4.2. *The Description Theory*

[1] A widely held version of the common view, according to which a name applies to its referent on the basis of the latter's possession of certain properties, is the description theory.² Historically the description theory of names may be regarded as an extension of the traditional theory of common nouns. At the heart of the traditional theory is the idea that the meaning (intension, connotation) of a common noun is given by specifying a conjunction of general properties, which determines the extension of the term. The theory, which can

¹To buttress the validity of Mill's contrast, Tienson makes the observation that general terms apply to new instances and proper names apply only to things to which they have been given. This can be explained by there being the kind of difference between general terms and proper names that Mill observed: general terms apply on the basis of properties. See Tienson 1986.

²Also referred to as 'the traditional theory' (Schwartz 1977), 'the orthodox theory' (Salmon 1982), 'the sense theory' (Searle 1967a), 'the descriptive theory' (Schwarz 1979). But 'the description theory', coined by Kripke, has now become the most widely used term for referring to the theory in recent literature. See for examples, Davies 1981, Devitt 1981.

be traced back to John Locke,¹ has a number of contemporary proponents, for example, Frege, Carnap, C. I. Lewis, Jerold Katz and others.² A straightforward extension of the traditional theory of common nouns is the description theory of singular reference. Frege's theory of sense and reference provides the general framework for the contemporary description theory.

Descriptive denotation, as conceived by Frege, is (in the case of singular terms) the best exemplification of the traditional conception of the determination of extension by meaning. According to Frege, a description expresses a *sense* (meaning). This sense is a *concept*, which may be thought of as a set of properties such that the reference (extension, denotation) of the description is whatever uniquely satisfies all these properties. For example, 'The 500-foot high red wooden hut', denotes the object, if any, which satisfies uniquely this set of properties: being 500-foot high, being red, being wooden, being a hut.

All singular terms, according to the description theory, are assimilated to the model of a description. Each name has a sense equivalent to that of some description, and this sense determines the reference of the name. On the basis of this main theme, some contemporary versions have been proposed. Searle, for example, suggests that the sense of a name, say 'Aristotle', consists in a 'cluster' (rather than a conjunction) of properties, for it is often not possible to identify the sense of every name with a conjunction of properties. Another version has been offered by Linsky. These accounts, however, are only refined variations of the same Fregean theme.³

[2] The Fregean notion of *sense* is the philosophical counterpart (in Frege's philosophy) of the pre-theoretical notion of meaning, and is a highly theoretical

¹See Locke 1706: Book III. In Schwartz 1977, there is a nice account of the traditional theory of meaning.

²See e.g. Carnap 1956, C. I. Lewis 1946, Katz 1972.

³See Searle 1958 and 1967 and Linsky 1977.

notion.¹ To construe 'sense' as if it were just another expression for the ordinary notion of meaning and argue accordingly over whether names have senses will hardly be fruitful. In order to get a clear picture of the description theory, it is necessary to look more closely at the notion of sense.

Strictly speaking, Frege did not develop a theory of sense because he offered no explicit definitions, or criteria for individuating senses. In this way, Frege did not tell us how to identify senses. But, on the other hand, it is quite unproblematic what theoretical roles Frege intended the notion of *sense* to play. In 'Belief *De Re*', Tyler Burge suggests that the notion has three functions in Frege's theory, and accordingly three senses of the term 'sense':²

A *sense*₁ accounts for the information value of an expression and represents the mode of representation to the thinker which is associated with an expression.

A *sense*₂ determines the reference or denotation associated with an expression: for singular terms, *senses*₂ serve as "routes" to singling out the unique object, if any, denoted by the term.

A *sense*₃ provides an entity to be denoted by an expression in oblique contexts.

One of the conclusions Burge draws is that no entity plays both the role of *sense*₁ and that of *sense*₂. (As shall be seen shortly, this is similar to the kind of conclusion that Kripke draws from the various arguments against the description theory).

On the basis of Burge's trification, Salmon proposes this refinement:³

*Sense*₄: The purely conceptual representation of an object which a fully competent speaker associates in a particular way with his or her use of

¹Linsky is surely right when he points out that the Fregean conception of sense 'is a notion with considerably more structure [compared with the vague concept of "meaning"] and part of a rather elaborately articulate theory'. See Linsky 1977: 75.

²See Burge 1977: § IV; especially p. 356.

³See Salmon 1982: 12. I have renumbered Salmon's *sense*₁, *sense*₂, and *sense*₃ as *sense*₄, *sense*₅ and *sense*₆ respectively.

the term. Sense₄ is a psychological or conceptual notion. The sense₄ of a term is something that a subject "grasps." It includes only purely qualitative properties; external things cannot "occur as constituents" of sense₄. Instead there are only conceptual representations thereof.

Sense₅: The mechanism by which the reference of the term (with respect to a possible world and a time) is secured and semantically determined. Sense₅ is a semantical notion.

Sense₆: The information value of the term; the contribution made by the term to the information content of sentences containing the term. Sense₆ is a cognitive or epistemic notion. The sense₆ of a term forms a part of any belief expressed by means of the term, and is relevant to the epistemological status (*a priori*, *posteriori*, trivial, informative) of sentences containing the term.¹

Of course, there are differences between the two categorizations given by Burge and Salmon. Indeed, finding a precise modelling of Frege's conception of sense is a difficult exegetical question. I shall not let that question detain us, though I shall say something about it in Chapter 5. As far as our present purposes are concerned, however, the important point to note is that, on both interpretations, the full-blown notion of *Sinn* is one that plays other roles in addition to the semantic one (sense₂ or sense₅). In other words, for a Fregean, all senses (whether according to Salmon's categorization or Burge's) are conflated.

4.3. Kripke's Arguments against the Description Theory

[1] To appreciate Kripke's arguments against the description theory of names, let us set out the theory in more detail. I shall use Salmon's categorization.

The theory has undergone various refinements. Here we shall not occupy ourselves with the fine differences between various versions. It is enough to say

¹Salmon mentions yet another kind of sense in a footnote to his categorization: the set or cluster of properties which a speaker associates in a certain way with his or her use of a term. Philosophers often speak of this as a "mental file" attached to a term. This notion of sense is not purely qualitative or conceptual, and may involve non-intensional entities as constituents (and this is what distinguishes it from sense₄ though it is a close variant of it). See also Zalta 1988: Ch.9.

that, according to the theory, a name expresses a 'descriptive sense' (or, in Carnap's and Linsky's terminology, an individual concept). The descriptive sense of a name 'N' will be the set of general properties which a competent speaker associates with 'N' (as its sense₄); and this set of properties also serves as the sense₅ of the name, in the sense that the referent of 'N' with respect to a possible world *w* is semantically determined to be whatever uniquely satisfies these properties in *w*. The stronger version of the theory holds that this set of properties is also the sense₆ of the name.

In other words, a descriptive sense can be regarded (according to the stronger version) as a Fregean sense—a conflation of all three senses—or (according to the weaker version) as a conflation of sense₄ with sense₅. Either way, Kripke's arguments are effective to refute the description theory,¹ as one of their main targets is the conflation of sense₄ with sense₅.²

[2] Kripke has offered a number of objections to the idea that names have a descriptive sense in the above way.³ One of his main objections is this: if the description theory is right, then the set of properties that the speaker associates with a name must pick out its referent. This means that if a speaker is to designate an object by a name, then he must have identifying knowledge of the

¹This point is important in order to appreciate fully the anti-Fregeanism in the objections to the description theory put forward by Kripke, or for that matter, by Putnam, Donnellan, and Kaplan. Fregeanism is the thesis that the set of properties that determines the reference of a singular term is a conflation of all three kinds of senses. Thus, in defence of Fregeanism (or for that matter the description theory), it's no use pointing out that names have some sort of meaning or (in the pre-theoretical sense) descriptive sense. Indeed, as shall be seen, each name has to have a sense₅—a mechanism which secures the the name's reference. See §6 below and Chapter 5: §1.3. See also Salmon 1979a, 1982: §1.2. For further discussions on the Fregean theory of sense, see Chapter 5.

²In fact arguments against Fregeanism in the recent literature usually proceed by arguing against some particular conflation of two of the various senses of 'sense'. For example, Burge (1977) argues that sense₁ ≠ sense₃; Salmon (1979b) argues that sense₄ ≠ sense₆.

³See also Devitt 1981, Salmon 1982, Schwartz 1977.

object (that is, he must know something about the object sufficient to identify it);¹ there are, however, numerous counter-examples to this claim.

First, there are names with which we associate a description that picks out an object other than the referent. One may think that Einstein is the inventor of the bomb, without failing to refer to Einstein using 'Einstein'. Or consider this story. Unbeknownst to us, someone called 'Schmidt' discovered the incompleteness theorem of arithmetic. His friend, Gödel, got hold of the manuscript before Schmidt died, and it was thereafter attributed to Gödel. If the description theory is right, then, for any of us who associate with 'Gödel' the description 'the man who discovered the incompleteness theorem of arithmetic', the name really refers to Schmidt; but this does not seem to be the case.²

Second, on the description theory, if the set of properties we associate with a name is not uniquely satisfied by *any* object, then the name must be an empty name. But suppose that the Biblical story about Moses is a substantially false account of a real person. It would not follow that Moses did not exist and that 'Moses' is an empty name. Or consider 'Jonah', which Biblical scholars generally do not regard as an empty name. Suppose we discover that Jonah was not a prophet but only an ordinary man, and that no one ever did the things commonly related about him. (This could quite easily occur.) In that case, we would want to say that the Biblical account of 'Jonah' is a legendary account built on a real person, i.e. Jonah, rather than claim that it is a pure legend and that 'Jonah' is an empty name.³

Third, there are cases where we simply do not have beliefs about the referent of a name that are specific enough for us to associate the name with an

¹For 'identifying knowledge', see Strawson 1964 and Donnellan 1972 for detailed discussion.

²See Kripke 1972: 84ff. See also Donnellan's 'Thales' example (Donnellan 1972: 373-375) and Salmon's discussions on what he calls the 'semantic arguments' (1982: 29-31).

³Kripke 1972: 65ff.

appropriate description. The description theorist might reply that a speaker need not have the relevant identifying knowledge in order to use a name because he can rely on other speakers' identifying knowledge (that is, he may "borrow his reference" from others). So a speaker S can refer to an object in using a name, 'N', in virtue of his being able to associate with 'N' a description such as 'the thing referred to by "N" as used by X'. However, even such a description may not be available to S if he forgets where he has gotten the name from.¹ Furthermore, Kripke argues that a theory that allows 'reference lending' must require that some 'reference lender' can identify the referent satisfactorily on his own.² However, a lender, or even the community as a whole, may hold a false belief about some individual and associate with a name a description which picks out 'the wrong object'.

Fourth, suppose that the description theory is correct, and that a certain name, 'N', means 'the individual who P_1 and P_2 ... and P_n '. (Where P_1, P_2, \dots, P_n are predicates expressing the properties p_1, p_2, \dots, p_n respectively.) It would follow that the statement 'If N exists, then N has all the p 's' (or, on the cluster version of the theory, 'If N exists, then N has most of the p 's') is known *a priori* by the speaker (because the statement would be analytic).³ This is clearly false. For instance, suppose that 'N' is 'Plato' and that, for simplicity, the relevant predicates are 'wrote *The Republic*' and 'wrote the *Meno*'; but, clearly, 'Plato wrote *The Republic* and the *Meno*' is not an *a priori* truth but an *a posteriori* truth.⁴

Finally, there is, of course, the modal argument. According to the description theory, for any name, say 'Plato', there is a set of properties such that

¹See Devitt 1981: 14-17 for some interesting related considerations.

²Otherwise the theory would violate the 'non-circularity' condition of a description theory of names. See Kripke 1972: 71ff. For further discussion on the condition, see Kroon 1989.

³And the only exceptions are perhaps cases where the referent of a name is explicitly fixed by a description.

⁴See Kripke 1982: 65ff. Also Salmon 1982: 27-29.

'Plato' refers, with respect to any world *w*, to the individual uniquely having all these properties in *w*. For simplicity, assume again that these properties are the ones expressed by 'wrote *The Republic*' and 'wrote the *Meno*'. It follows that it is necessarily true that Plato wrote *The Republic* and the *Meno*. But this, Kripke argues, cannot be right. 'Plato' is rigid but 'the person who wrote *The Republic* and the *Meno*' is not. (One may recall the intuitive test for rigidity.) So, Plato might not have been the person who wrote *The Republic* and the *Meno*.

[3] As one should be able to see, the principal difference that separates the description theorist and Kripke is this: Kripke holds that whereas descriptions, in general, have a descriptive sense, names do not (and, *ipso facto*, do not have a Fregean sense). To import some congenial terminology, we may say that the distinctive semantic feature of names, according to Kripke, is *direct-referentiality*, meaning that a name does not refer by way of a descriptive sense.¹

So the reading of 'Naming and Necessity' mentioned earlier is one-sided, at best. For that reading takes *rigidity* as the fundamental notion in Kripke's theory. To be sure, rigidity is an important notion in 'Naming and Necessity', as the modal argument is one that Kripke dwells heavily on. But, as we have just seen, there are other arguments which are no less powerful. Indeed, the modal argument, compared with the other arguments, is perhaps not the strongest or the most important one. The non-modal considerations Kripke has adduced

¹The term 'direct reference' is due to David Kaplan (1989a) and 'the theory of direct reference' is now commonly used to refer to the theory pioneered by Kripke, Donnellan, Putnam and Kaplan. (Kaplan 1989a had been circulated in mimeographed form over a decade before its publication in 1989.) In fact, apart from characterizing 'direct reference' in a negative manner as referring 'directly without the mediation of a Fregean *Sinn* as meaning', Kaplan has another way of characterizing 'direct reference'; that is, in terms of 'propositional components' and 'singular propositions'. (See Kaplan 1989a: 483ff and 1989b: 568ff.)

As there is virtually no "proposition-talk" in 'Naming and Necessity', it may seem exegetically disputable to say that Kripke holds the 'theory of direct reference' in the sense that he espouses singular propositions. But as far as the negative characterization goes, I think there is no doubt that the crux of Kripke's semantics of names is 'direct reference'. In Chapter 5 (§1) I discuss the link between singular propositions and direct reference.

address more *directly* the issue which divides Kripke and the description theorists, namely the issue whether names refer with the mediation of a descriptive sense.

It is quite misleading therefore to say, as Almog does, that Kripke subordinates the analysis of naming to considerations from the theory of necessity, and that 'Naming and Necessity' is a backward manoeuvre from metaphysics to semantics. In the semantic theory Kripke has advanced, the Mill-inspired notion of direct reference is the most fundamental.

5. Direct Reference, Semantics for Modal Logic, and Kaplan-Rigidity

5.1. Individual Variables and Direct Reference

[1] It is hardly surprising that 'Naming and Necessity' would be understood as containing a semantic theory which identifies naming with rigid designation. As noted, Kripke dwells heavily on the modal argument and seems to regard our modal intuitions as providing the best weapon against the description theory.

It is also not surprising that, as one of the pioneers of possible-worlds semantics for modal logic, Kripke should find so enticing the idea of demolishing the description theory with considerations from the theory of necessity. In 'Demonstratives', Kaplan remarks that the feverish development of quantified modal logic of the 1960s, to which Kripke was one of the most prominent contributors, gave rise to a metaphysical and epistemological problem of identifying individuals across worlds, and that this problem was really just the problem of singular propositions.¹ As we shall see in Chapter 5, this latter problem is in turn closely tied up with that of direct reference. Indeed, in the kind of quantified modal logic developed by Kripke in the 1960s, which is

¹Kaplan 1989a. See also Kaplan 1975.

the background modal logic for 'Naming and Necessity', one can already find that direct reference and modal considerations are closely linked to each other in the case of free individual variables.

[2] Individual variables differ from other singular terms such as names or descriptions in not having a fixed value. In this sense, one might say that a variable does not denote, or refer to, any object. But in conventional formal semantics, free individual variables are interpreted by an *assignment*: to interpret a free variable, we assign to it a value (drawn from the domain of objects) as its denotation. Thus, so far as we can say of an individual variable that it denotes, or refers to, an object, it does so in an entirely different way from a description. A variable does not denote by means of *expressing* a sense, specifiable as a set of conditions, such that its denotation is whatever uniquely satisfies the conditions. The value of a variable is given to it directly by assignment. Therefore, Kaplan says, rightly I believe, that 'the conception of direct reference takes the variable under an assignment of value as its paradigm.'¹

In the possible-worlds semantics for quantified modal logic developed by Kripke,² individual variables are treated in a similar manner. When interpreting a free individual variable, we assign to it a value from the domain of possible objects. Such an assignment does not vary across possible worlds. Thus free variables are interpreted as having the same denotation at all possible worlds. For example, in order to evaluate the truth value of ' $\Box Fx$ ' at a possible world w , we are required to interpret the free variable ' x ' by assigning to it a value, and interpret x as designating that value at w and at all the further possible worlds introduced by the operator ' \Box '.

¹Kaplan 1989b: 571.

²In Kripke 1963a.

Strictly speaking there is no reason why one *must* treat the interpretation of individual variables this way. One could consistently interpret variables as having different denotations from possible world to possible world, so that a variable under an assignment is not rigid. But this would seem entirely arbitrary and artificial, given that a variable is semantically and syntactically unstructured and that its denotation is fully determined by an assignment. By contrast, a description—the clearest case of a Fregean singular term—is a syntactically and semantically structured expression and denotes an object by, as it were, rummaging through the objects in each possible world seeking anything uniquely satisfying certain conditions. It is most natural to expect, therefore, that its denotation varies systematically and non-arbitrarily across possible worlds.¹ Hence, a free individual variable under an assignment provides the clearest case in which we can see how modal consequences follow from a term's being directly referential.

[3] Now for those who are sympathetic to Mill's point of view concerning names, the above observations are sources for ideas which can be employed for refuting the Fregean theory of names. Despite the fact that individual variables have no fixed values, from the Millian point of view, they can be, nevertheless, regarded as the formal exemplification of our pre-theoretical concept of 'genuine naming device', as they have no meaning or sense of any sort. In other words, they can be regarded as, so to speak, "temporary", if not "permanent", names of their values under an assignment. Indeed, McGinn has argued just this: 'there can be no logical obstacle to freezing them [individual variables] into individual constants—and then won't these look just like our familiar names?'²

Given this observation, and the earlier one concerning the connection between direct reference and rigidity in the case of an individual variable, it is

¹See Salmon 1982: 33, note 35. See also Kaplan 1989b: 571ff, Salmon 1989b.

²In the same vein, Salmon says, 'Individual variables are singular terms that would be individual constants but for their promiscuity.' (1989b: 214.)

small wonder that a Millian would expect to find a modal difference between names and descriptions, and would draw on it by way of *attesting* to the principal difference between the two kinds of designators; in other words, that names, but not descriptions, are directly referential.

5.2. *Kaplan-Rigidity*

[1] Given the direct-referentiality of names, it might be expected that names, in contrast to descriptions, can be shown to be distinctively rigid. It is, however, by no means easy to do this. For, even allowing the above observation about the connection between direct reference and rigidity, 'direct reference' and 'rigidity' are nevertheless distinct concepts. We have noted that if artificiality is allowed, there is no logical obstacle to interpreting variables flaccidly. We have also seen that there are rigid descriptions that cannot be filtered out with the *de jure* device.

This only means, one might think, that we need to refine the notion of rigidity further. The problem, however, is not that simple. Any further refinement must be made with a view to bringing out more clearly the direct-referentiality of names, rather than simply an *ad hoc* device to filter out unwelcome descriptions.

The following considerations in this and the next sub-section concerning *Kaplan-rigidity*, I think, may shed some light on this problem.

[2] A 'rigid designator', as originally characterized by Kripke, is an expression which designates the same object with respect to every possible world in which that object exists, and which designates nothing with respect to a possible world in which that object does not exist. He writes,

...when I use the notion of rigid designator, I do not imply that the object referred to necessarily exists. All I mean is that in any possible world where the object in question *does* exist, in any situation where the object *would* exist, we use the designator in question to designate

that object. In a situation where the object does not exist, then we should say that the designator has no referent and that the object in question so designated does not exist.¹

We may call this 'the existence conception of rigidity'. Kripke's view on rigidity and existence is a bit vaguer in 'Naming and Necessity':

Let's call something a rigid designator if in every possible world it designates the same object....Of course we don't require that the objects exist in all possible worlds.²

But he still seems to hold the existence conception as later on he says,

...a designator rigidly designates a certain object if it designates that object wherever the object exists.³

However, Kaplan, who believes that Kripke is right in claiming that names are rigid, has the following to say about the existence conception:

There is an unfortunate confusion in the idea that a proper name would designate nothing if the bearer of the name were not to exist. Kripke himself adopts positions which seem inconsistent with this feature of rigid designators. In arguing that the object designated by a rigid designator need not exist in every possible world, he seems to assert that under certain circumstances what is expressed by 'Hitler does not exist' would have been true, and not because 'Hitler' would have designated nothing (in *that* case we might have given the sentence *no* truth value) but because what 'Hitler' would have designated—namely Hitler—would not have existed.⁴

Kaplan therefore thinks that there are two 'definitions' of 'rigid designators' in *Naming and Necessity*,⁵ and that Kripke's *intended* definition must be one according to which a rigid designator refers to the same object with respect to *all*

¹Kripke 1971: 146.

²Kripke 1972: 48.

³*Ibid.*, 48f.

⁴Kaplan 1989a: 492f.

⁵*Ibid.*, 493, note 16.

possible worlds *whether the object exists or not*.¹ Let us say that designators of this kind are 'Kaplan-rigid'.² Kaplan contends that Kaplan-rigidity is the *fundamental form* of rigid designation and maintains that directly referential terms are Kaplan-rigid.

[3] What might make us resist the conception of Kaplan-rigidity and prefer the existence conception is the following kind of consideration:

...though a name might denote the same individual with respect to any possible world (or, more general, possible circumstance) in which he exists, it certainly *cannot* denote him with respect to a possible world in which he does not exist. With respect to such a world there must be a gap in the name's designation.³

In 'Bob and Carol and Ted and Alice', Kaplan argues against this idea, which he thinks is a 'mistake'. His argument draws heavily on the close analogy between

¹Kripke, however, thinks that Kaplan gets his (Kripke's) intention wrong. Kaplan reports:

In a letter...Kripke states that the notion of rigid designation he intended is that "a designator *d* of an object *x* is *rigid*, if it designates *x* with respect to all possible worlds where *x* exists, and *never designates an object other than x with respect to any possible world*." This definition is designed to be neutral with regard to the question whether a designator can designate an object at a world in which the object doesn't exist. It was motivated, he says, by the desire to avoid getting bogged down in irrelevant discussions of the existence question. (Kaplan 1989b: 569f.)

But I think Kaplan is right when he says that he cannot be embarrassed by his reading of the textual evidence. The clause 'and never designates an object other than *x*'—which appears in the 'neutral definition' Kripke claims he intended—does not occur in 'Naming and Necessity', 'Identity and Necessity', or the 1980 preface to *Naming and Necessity*. (See also Kaplan 1989b: 570, note 8). In fact, referring to the 'Hitler' example—which is also part of the textual evidence that Kaplan thinks indicates Kripke's intention (see the passage just quoted in the text about Hitler)—Kripke has written:

Since names are rigid *de jure*—see p.78 below [i.e. the 'Hitler' example]—I say that a proper name rigidly designates its referent *even when we speak of counterfactual situations where that referent would not have existed*. (Kripke 1980: 21, note 21; emphasis added.)

Certainly, Kripke is the one who can give the right verdict on what his own intention was, but it seems that Kaplan is right in thinking that Kripke is not entirely consistent regarding his own position.

²There is a recent debate concerning 'Kripke-rigidity' and 'Kaplan-rigidity'; see Smith 1984 and 1987 and Steinman 1985.

³Kaplan 1973: 503.

semantic considerations about modal logic and tense logic. The basic idea is as follows.¹

If we evaluate the sentence,

Wong is dead,

with respect to any time—say the year 1997—after Wong’s death, we shall find that it is true. But this can be so only if ‘Wong’ designates Wong with respect to the year 1997. For, if ‘Wong’ designates nothing with respect to any time after Wong’s death, then, given the usual treatment of the truth-value of a simple sentence whose subject is a vacuous denoting term, the sentence ‘Wong is dead’ would lack a truth-value (or, according to some, have the value False) with respect to 1997. The same story can be told about the evaluation of a sentence with respect to any possible world other than the actual world where the designatum in question does not exist. Here is an example which illustrates the point. ‘Would World War II have taken place if Hitler had never been born?’ is certainly as sensible as any other question concerning counterfactual situations. The counterfactual situations relevant to this question are those where Hitler does not exist. Thus it is clear that we can use ‘Hitler’ to refer to Hitler in modal discourse about counterfactual situations where he does not exist.

Kaplan does have a very strong case here. Indeed, the following observation will show that there seems no reason why, given the background modal semantics of ‘Naming and Necessity’, Kripke should find the Kaplanian conception less congenial than the existence conception of rigidity.

[4] Recall that we have seen how considerations about the Kripke-style modal semantics provide a formal underpinning for Kripke’s modal argument. We have also seen how direct reference is connected to rigidity in the formal framework of Kripke’s modal semantics. The following closer inspection of this framework will reveal that the form of rigidity involved is *Kaplan-rigidity*.

¹See Kaplan 1973: Appendix X. See also Salmon 1982: 36–40

Again, the focus is on individual variables. To facilitate understanding and presentation, let me first describe a simplified version of Kripke's semantics for quantified modal logic.¹

A Kripke-model M for a quantified modal language L is defined as an ordered five-tuple $\langle W, D, d, w^*, V \rangle$ where

- (1) W is a non-empty set of possible worlds,
- (2) D is a non-empty set of possible objects;
- (3) d is a function which assigns to each member w of W a certain subset, $d(w)$, of D . $d(w)$, called the 'inner domain' of w , is the set of objects which exist in w .
- (4) w^* is a particular member of W . (Intuitively speaking, w^* is the actual world.)
- (5) V is a value-assignment function satisfying the following conditions:
 - (a) For every n -place atomic predicate P , $V(P)$ is some set of ordered $(n + 1)$ -tuples, each of the form $\langle u_1, \dots, u_n, w \rangle$, where w is a member of W and u_1, \dots, u_n are objects drawn from D (note: *not* 'from $d(w)$ ').
 - (b) V assigns to every individual variable x some object in D as its value.
 - (c) For every atomic formula Px_1, \dots, x_n , $V(Px_1, \dots, x_n, w) = T$ (i.e. Px_1, \dots, x_n is true at w) iff $\langle V(x_1), \dots, V(x_n), w \rangle$ is a member of $V(P)$; otherwise $V(Px_1, \dots, x_n, w) = F$.
 - (d) $V(\sim A, w) = T$ if $V(A, w) = F$; otherwise $V(\sim A, w) = F$. (A is any well formed sentence in L and w is a member of W . The same holds below.)
 - (e) $V(A \& B, w) = T$ if $V(A, w) = T$ and $V(B, w) = T$; otherwise $V(A \& B, w) = F$.

¹For Kripke's classic formulation, see Kripke 1963a. My presentation incorporates some features of the presentation of Hughes and Cresswell and that of Forbes. See Hughes and Cresswell 1968: Ch. 10, esp. 178ff, and Forbes 1989b. (Forbes's presentation is in the style of Fine 1978.) It should be noted that the modal logic system (or family of systems) I am describing is what is known as 'quantified S5'. Quantified S5 is chosen partly because it has proved to be the most fruitful and partly because it will allow us to simplify the presentation by leaving out what is often called the 'accessibility relation' (a dyadic relation between possible worlds, which is required for defining a model in other systems), a simplification which we can make given our present purposes.

- (f) $V(\Box A, w) = T$ if for every world w' in W , $V(A, w') = T$; otherwise $V(\Box A, w) = F$.¹
- (g) If x is a variable, then $V((x)A, w) = T$ if for every assignment V^* which assigns to x some object drawn from $d(w)$ and is otherwise the same as V , $V^*(A, w) = T$; otherwise $V((x)A, w) = F$.²

Finally, we say that a sentence S in L is *true in the model M* iff $V(S, w^*) = T$, and that S is *valid* iff S is true in all Kripke-models.

Now, let us focus on the evaluation clause for individual variables. Given the clause (b), it is clear that there is no way that the value of a free individual variable in a model, say M , can vary across possible worlds. For the variable is interpreted by the assignment function V , which assigns an object from D to the variable, and such assignment does not vary across possible worlds. When evaluating the truth value of an atomic formula, say, ' Fx ', at a certain world w in M , the value of the formula is determined by whether the object $V(x)$, which is the designatum of ' x ', falls, or does not fall, in the extension of F at w . And similarly for the evaluation of Fx at every other world in the same model.

Furthermore, it should be noted that there is no mention of inner domains in either (b) or (c). Thus, when we evaluate Fx at w , the question whether the value assigned to x is in the inner domain of w , i.e. $d(w)$, is *not* relevant to the evaluation. Since, intuitively, $d(w)$ is the set of objects existing in w , this means that the free variable ' x ' in a model designates the same object assigned to it with respect to any world, whether the object exists in that world or not. What inner domains are relevant to is the evaluation of quantifiers. When calculating the value of a quantified formula on the assignment V , we consider, according to (g), every other way, V^* , of interpreting the quantified variable as designating an object in the inner domain of the relevant world. But

¹ \Diamond (the *possibility* operator) can be defined thus: $\Diamond A =_{\text{Df}} \sim \Box \sim A$.

²That is to say, we are interpreting "'Everything is P ' is true in w ' as meaning that everything in $d(w)$ is P . See Hughes and Cresswell 1968: 179, and also Forbes 1989b: 4ff.

relative to each of these other assignments, the variable is still interpreted as designating the same object at all worlds, irrespective of what objects are in the inner domain of each of these worlds.

Hence, individual variables in Kripke's semantics are Kaplan-rigid. Assuming what we said earlier about the connection between Kripke's formal semantics and the modal argument, there is no reason why Kripke's modal argument, and for that matter, 'Naming and Necessity', should not embrace the conception of Kaplan-rigidity rather than the existence conception of rigidity.

5.3. *Kaplan-Rigidity and Rigid Descriptions*

[1] Can there be, then, any Kaplan-rigid definite descriptions?

According to the conventional formal treatment of descriptions, descriptions are analysable in terms of quantification. Now, if we adopt this treatment, and if quantifiers are taken 'objectually' and 'actualistically', then the answer to the above question will be 'No'. This can be explained as follows.¹ On the *objectual* interpretation of quantifiers, the quantifier (x) is taken as speaking of every object in the relevant domain. That is, (x)(..x..) is true iff (..x..) is true of all objects in the domain. Furthermore, in a non-modal language, we naturally interpret quantifiers as ranging over all actual existent things.² To accommodate this non-modal usage, one may interpret the quantifier in a modal language in an *actualist* manner by imposing a restriction on the scope of the quantifier such that (x)(..x..) is true with respect to a certain possible world iff every object existing in that world satisfies (..x..).

So given that (a) definite descriptions are treated conventionally, and (b) quantification in modal language is construed in an objectual and actualist fashion, a definite description can denote an object with respect to a possible

¹For discussions on 'objectual' and 'actualist' interpretations of quantifiers and alternative interpretations, see for example Cocchiarella 1984, Fine 1981, Forbes 1985: 243ff, Forbes 1989b: Part I, Garson 1984, and Kripke 1976.

²But some would disagree; see for example Parsons 1980 and Routley 1980.

world only if that object exists in that world. This means that a description that denotes a contingent object cannot be rigid in the Kaplanian sense: a description never designates an object with respect to a possible world where the object does not exist, because that object will not be in the domain of the quantifiers in terms of which the description is analysed. (Note that this analysis conforms to the formal features of Kripke's semantics as presented above. The definition of a Kripke-model, in particular the evaluation clause (g), embodies the objectual, as well as the actual, interpretation of quantifiers. Firstly, according to the clause (g), the truth value of a quantified formula turns on how things are with the *objects* in the relevant domain. Secondly, (g) also requires that the relevant domain is restricted to the *inner domain* of the world with respect to which the formula is evaluated. So the interpretation of quantifiers is objectual and actualist in a Kripke-model.)

Following a suggestion of Salmon, let us call a Kaplan-rigid designator 'an obstinate designator'¹. Clearly the *obstinacy-filter* can filter out all definite descriptions denoting contingent existents. But the filter is ineffective against those descriptions which denote necessary existents. A necessary existent will not fail to exist in any inner domain of any world. It follows, therefore, that if a description designating a necessary existent, *x*, is rigid, then it designates *x* with respect to every possible world, period. There is simply no question of whether the description denotes it with respect to a world in which it does not exist.

[2] It seems, then, we still have the same sort of problem we had before. Recall that the simple definition of 'rigid designator' covers descriptions such as 'the smallest prime', which we managed to filter out by distinguishing *de jure* rigidity from *de facto* rigidity. But the definition of '*de jure* description' still covers, as we have seen, such descriptions as 'the actual offspring of zygote Z'.

¹Kaplan himself follows the same suggestion in his latest writing. See Kaplan 1989b: 571.

Now we have a parallel problem: *obstinacy* can rule out descriptions denoting contingent objects, but not descriptions denoting necessary objects. (For instance, 'the $n[(P \& n^2=9) \vee (\sim P \& 2^2=n+1)]$ '¹ and 'the smallest prime' are clearly obstinately rigid.)

The question that immediately suggests itself is "Are there *de jure* obstinately rigid descriptions?" If 'the actual...' construction can generate *de jure* rigid description, then it surely can generate *de jure* obstinately rigid descriptions. Just fill the blank '....' in such a way that the whole description picks out a necessary existent. A description generated this way, for example, 'the actual number of planets', is not only rigid in the *de jure* sense, but also obstinately rigid because the referent exists in all possible worlds and thus, *ipso facto*, the description denotes the same object at *all* possible worlds.²

This is not at all surprising. We have seen that rigidity is a consequence of direct reference. This connection between rigidity and direct reference may be profitably exploited in refuting the descriptionist's attempt to construe names as essentially descriptions. But the demolition does not proceed by way of establishing an extensional, or intensional, identification between naming and rigid description. Endeavours of such a kind are bound to produce only unsatisfactory results. While 'naming' is a purely semantic notion, 'rigidity' is a modally oriented notion. The two concepts are not identical or co-extensive, although they are connected. However, as to the refutation of the descriptionist's enterprise, the considerations about obstinate (Kaplan) rigidity are certainly important: the notion of an obstinately rigid description designating a contingent existent, we have seen, is *not* a possible notion.³ But proper names certainly can be (and in fact are mostly) used for designating

¹This example is due to Kaplan. See Kaplan 1989b: 571.

²It is questionable, however, that a version of the description theory which exploits the notion of 'actualized descriptions' could be what the description theorist wants, because, at least according to Kaplan's Logic for Demonstratives (LD) 'actual' is itself a notion involving direct referentiality. See Kaplan 1989a.

³At least when quantifiers are interpreted in accordance with Kripkean semantics.

contingent objects. So, despite the fact that there are descriptions such as 'the actual number of planets' which arguably are *de jure* and obstinately rigid, the assimilation of names to descriptions is still objectionable on, *inter alia*, modal grounds.

6. Concluding Remarks

[1] I have suggested a way of looking at the problem of naming and rigid designation in 'Naming and Necessity'. Two of the central ideas in this suggestion are: (a) direct reference is the fundamental notion in Kripke's account of naming, and (b) the point of Kripke's considerations about rigidity is to bring out the genuine semantic feature (i.e. direct reference) that separates names and descriptions, a difference which the description theorist fails to appreciate.

My reading, in that it draws on Kaplan's notion of direct reference, may be viewed as an interesting (I hope) reconstruction of the semantic account in 'Naming and Necessity'. However, the *reconstructive* nature of our approach to 'Naming and Necessity' must not be over-emphasized. It is true that Kripke may not have been very conscious of, and did seem to blur over, the distinction between direct reference and rigid designation, but he nevertheless has made it very clear that Millianism is central to his picture of naming. And the 'theory of direct reference', to which I maintain Kripke subscribes, is Millian in spirit.¹

[2] Something needs now to be said about the causal theory of reference Kripke puts forward in 'Naming and Necessity'. The central idea of this theory is that what links a name to its referent is some causal-historical chain. It is worth noting that the causal theory is also espoused by other exponents of the theory of

¹It may be noted that it is quite common now to regard, or at least to refer to, Kripke as a 'theorist of direct reference'. Perhaps even Almog wouldn't object to this. But interestingly, the one-sided reading of 'Naming and Necessity' which I have examined is no less common still.

direct reference (or, as it is also called, the new theory of reference), such as Putnam, Donnellan and Kaplan. Perhaps one might think that if what is fundamental in the Kripkean picture of naming is *direct* reference, then the causal theory cannot be correct, because the causal route linking a name and its referent is certainly not a 'direct' one. But this is wrong. Let me explain.

The theory of direct reference rejects the idea that names designate by way of a descriptive sense. But it does not follow that the theorists of direct reference hold that there is no link of any kind between a name and its referent. Perhaps we can invoke here Kripke's distinction between *reference-fixing* and *meaning-giving*. In the case of a description, what fixes the reference is *also* what gives the meaning: the sense expressed by a description is the *meaning* of the expression, and by way of this meaning the referent is fixed, or is linked to the description. But Kripke's rejection of the description theory of names makes it possible to think that one can fix the reference of a term without thereby giving the meaning of the term. Indeed, if Kripke is right, a name does not have a meaning at all, in the sense in which a description has a meaning. Then in what way is a name linked to its referent? There must be some link; otherwise we have to say that 'Socrates' refers to Socrates by magic. The causal theory gives an answer to the question. It explains how the reference of a name is fixed. That is, how a name is linked to its referent if it is not in virtue of the name's having a meaning, or expressing a descriptive sense.

The causal theory therefore concerns 'fixing the reference', not the meaning of a name. And it is grossly implausible that Kripke should intend his causal theory to be taken as saying that a name *means*, or is synonymous with, something like *the object which lies at the other end of the causal chain leading to this name-token*, which apparently amounts to saying that a name is semantically equivalent to some definite description describing the relevant causal link between the name and the referent. Such a version of the description

theory is subject to all of the assaults Kripke himself has launched against the theory.

Perhaps we may import some congenial terminology so that we can say of what fixes the reference of a singular term that it is, or is not, also the *propositional content* of the term. Here, by 'propositional content' I mean the contribution that the term makes to the proposition expressed by a sentence in which it occurs. The Fregean holds that for any singular term, the meaning, the propositional content, and what fixes the reference are one and the same thing; while, being an anti-Fregean, the theorist of direct reference holds that for proper names at least, what fixes the reference need not, at the same time, be the propositional content or the meaning. And the point I wanted to make about Kripke's causal theory is that it is not meant to *state* the propositional content of proper names. Instead, it tells us the basis of how to discover a name's referent, the very object whose possession of a certain property, or not, in a possible world determines the truth value (with respect to that world) of the proposition expressed by a sentence containing the name with respect to that world. I shall say a bit more about the status of the causal theory in Chapter 5.

[3] Kripke, however, refrained from employing the concept of propositions in his exposition. One of the reasons, I believe, is that the contemporary concept of 'propositions' has been heavily loaded with Fregeanism.¹ And the lack of an official doctrine on propositions in 'Naming and Necessity', I think, has been the source of the unfruitfulness of many discussions on the problem of whether his view on names entails the existence of necessary *a posteriori* truths, such as 'Hesperus is Phosphorus'. It has not been uncommon that, in a debate concerning this problem, one would take for granted the assumption that the problem is about whether the Kripkean semantics of naming entails the

¹ At least on some very common construals of 'proposition' and before the recent revival of 'singular propositions'. See Chapter 5.

existence of necessary *a posteriori* 'propositions'. This is not an illegitimate assumption. But the trouble is that the debater is usually equipped with a conception of propositions which clashes with the central tenets of the theory of direct reference, or is ill-defined, or is simply amorphous.

In the bulk of the following chapters, I shall scrutinize the problem in the context of two approaches to propositions: (a) the possible-worlds approach, according to which propositions are *unstructured* entities, i.e. sets of possible worlds, and (b) the *structured* approach, which takes propositions as complexes of propositional components. To set the stage, I shall, in the next chapter, outline a general argument against Kripke's view on the necessary *a posteriori*—an argument framed in terms of 'propositions'.

Chapter 2

Against the Necessary A Posteriori

1. Necessary Statements of Identity

[1] Prior to 'Naming and Necessity', it was a common belief that the distinction between 'necessary' and 'contingent' and the distinction between '*a priori*' and '*a posteriori*' coincided; some even held that 'necessary' and '*a priori*' were synonymous terms.¹

In 'Naming and Necessity', Kripke argues against this traditional assimilation of metaphysical modalities and epistemic modalities. He points out not only that the terms 'necessary' and '*a priori*', as applied to statements, 'are not obvious synonyms',² but also that they are not even coextensive. '[Necessity and *a priori*] belong to different domains of philosophy,' Kripke says; 'one of them has something to do with knowledge, with what can be known in certain

¹See for instance Ayer 1947 and Pap 1958. For some related discussion, see Horowitz 1985, Quinton 1964, Plantinga 1974, Sloman 1965, and Swinburne 1975.

²Kripke 1972: 38.

ways about the actual world. The other one has to do with metaphysics, how the world could have been.¹

The clearest counter-examples offered by Kripke against the co-extensiveness of 'necessary' and '*a priori*' are true identity statements with proper names flanking the identity sign, such as 'Hesperus is Phosphorus'.

On the assumption that 'Hesperus is Phosphorus' is *a posteriori*, 'Hesperus is Phosphorus' will serve as a counter-example to the co-extensiveness thesis if it can be proved that it is necessary.

Given that names are, as we argued in the preceding chapter, directly referential, the task of proving the necessity of 'Hesperus is Phosphorus' seems quite effortless because, as noted, 'direct reference' and 'necessity', though different concepts, are closely connected to each other: directly referential terms are rigid. The following reasoning shows that any true identity statement constructed from two rigid terms is necessary.

By the orthodox (Kripkean) modal semantics an identity statement ' $a = b$ ' is true with respect to a possible world w iff the denotation of ' a ' with respect to w is identical with the denotation of ' b ' with respect to w . Now if ' $a = b$ ' is true with respect to the actual world (i.e. if the denotations of ' a ' and ' b ' are actually the same), then, given that both ' a ' and ' b ' are rigid, the denotations of ' a ' and ' b ' are the same with respect to all possible worlds. Thus, assuming 'Hesperus is Phosphorus' is true, it is true with respect to all possible worlds, viz. it is necessarily true.²

¹Kripke 1971: 150. For discussions on, or related to, Kripke's claim, see Bostock 1988; Carter 1976; Carter and Nagel 1982; Casullo 1977, 1979 and 1988; Davies 1981: VIII-IX; Donnellan 1979; Evans 1979; Erwin 1974; Fitch 1976; Kitcher 1980; Nicholls and Passells 1986; Odegard 1976; Salmon 1979b and 1982; Schiffer 1979; and Tichy 1983.

²A caveat: Venus exists contingently, not necessarily. I don't deny this when I say that 'Hesperus is Phosphorus' is true in all possible worlds. But I am assuming that all directly referential terms are *obstinately* rigid. Given this assumption, if 'Hesperus' and 'Phosphorus' designate the same thing with respect to the actual world, then they designate the same thing with respect to every possible world, whether Venus exists in that world or not.

If we assume that directly referential terms are only *persistently* rigid, then 'Hesperus is Phosphorus' will be either false or truth-valueless with respect to a Venus-

[2] The above argument is simple and flawless. Indeed, one cannot challenge it without rejecting the way in which identity is handled in the orthodox modal logic. For the intuition about identity behind the argument is an integral part of the orthodox semantics for modal logic. To see this, consider the formula:

$$(1) \quad (x)(y) [(x=y) \rightarrow \Box(x=y)].$$

According to the orthodox semantics for modal logic, (1) is valid. But as Kripke says, it 'has been often regarded as highly paradoxical'¹ because it seems to have the paradoxical consequence that there are no contingent identity statements. From a Quinean point of view, the paradox is just a symptom of the fact that modal logic is committed to Aristotelian essentialism—the thesis that an object has some of its traits necessarily and others contingently—which, according to Quine, is a 'metaphysical jungle'² that gives rise to paradoxes and puzzlement.³ (This is also one of the major criticisms Quine made of the intelligibility of quantified modal logic.) Concerning the essentialist presuppositions of (1), Quine says:

The system presented in Miss Barcan's pioneer papers on quantified modal logic differed from the systems of Carnap and Church in imposing no special limitations on the values of variables. That she was prepared, moreover, to accept the essentialist presuppositions seems rather hinted in her theorem:

$$(x)(y) [(x=y) \rightarrow [\text{necessarily } (x=y)]],$$

less world; but we can still derive counter-examples to the co-extensiveness thesis from the direct theory of reference. In that case, a counter-example will be a *conditional* statement like 'If Venus exists, then Hesperus is Phosphorus' (or equivalently, 'Hesperus, if it exists, is Phosphorus'), which is true with respect to every possible world, whether Venus exists in that world or not. If 'Hesperus is Phosphorus' is a *posteriori*, then so is the corresponding conditional statement.

¹Kripke 1971: 136.

²Quine 1953: 174.

³The classic papers on the 'sins' of modal logic are Quine 1953 and 1961. Linsky 1971 is a collection of direct responses to Quine's view.

for this is as if to say that some at least (and in fact at most; cf. 'p•Fx') of the traits that determine an object do so necessarily.¹

It is true that (1) is essentialist in the sense that it asserts that any object which is identical with x is necessarily identical with x . But only x itself can be identical with x , so (1) asserts no more than that everything is necessarily identical with itself, i.e. (put in a formal mode)

$$(2) \quad (x) \Box(x = x).$$

In fact, from (2) and

$$(3) \quad (x) (y) ((x = y) \rightarrow (\Box(x = x) \rightarrow \Box(x = y))),$$

which is a substitution instance of the law of substitutivity of identity

$$(4) \quad (x) (y) ((x = y) \rightarrow (Fx \rightarrow Fy)),$$

we can derive (1). Now, if (1) amounts to no more than (2), which is by no means paradoxical, how could it be understood as having the paradoxical consequence that all true identity statements, including for example

$$(5) \quad \text{The evening star is Venus,}$$

are necessary? Let us consider (5). If descriptions are understood in accordance with the conventional Russellian account, there is no reason why (1) should be incompatible with the contingency of (5). On that account, a description may be interpreted as having a wide scope or a narrow scope. Applying this scope-distinction to the description 'the evening star' in the following necessitation of (5)

$$(5N) \quad \Box(\text{The evening star} = \text{Venus}),$$

we can distinguish two readings of (5N):

- (a) Just one thing x has the property of being the first star to appear in the evening and it is necessary that $x = \text{Venus}$

¹Quine 1961: 156.

- (b) It is necessary that just one thing x has the property of being the first star to appear in the evening and $x = \text{Venus}$.

(a) is the wide scope reading, and (b) is the narrow scope reading.

Given the notion of scope, it is clear that, in order to derive correctly

$$(5N^*). (\text{The evening star} = \text{Venus}) \rightarrow \Box(\text{the evening star} = \text{Venus})$$

from (1), 'the evening star' in the consequent of (5N*), i.e. (5N), must be interpreted as having a wide scope.¹ That is to say, (5N) must be read as (a), rather than (b). But (5N) is incompatible with the claim that it is contingent that the evening star is Venus, *only when* it is read as (b). In other words, what (1) allows us to infer is that, given that a certain thing is, as a matter of fact, the evening star and is identical with Venus, it is necessary that that thing is Venus. This is compatible with the claim that it is contingent that the evening star should be Venus.²

Hence, what (1) establishes is not that all true identity statements are necessary. What then does it really establish? Recall that, according to the orthodox semantics, (1) is true (with respect to a world w) under an assignment V , iff for every alternative assignment V^* , the formula

$$(6) \quad (x = y) \rightarrow \Box(x = y)$$

is true. As seen in Chapter One, free individual variables under an assignment are paradigms of directly referential terms, and their denotations do not vary across possible worlds. In other words, they are rigid. Thus, given a particular assignment, what (6) says is just that if ' x ' and ' y ' are assigned the same object, then necessarily that object is identical to itself. Given the evaluation clause for ' \Box ', it is clear that on no assignment can (6) be false. Hence (1) is valid. And if we

¹Kripke 1971: 139ff and Smullyan 1948 explain this clearly.

²See Kripke 1971: 135ff.

are to derive correctly ' $(a=b) \rightarrow \Box(a=b)$ ' from (1) by instantiation, then the singular terms 'a' and 'b' must be rigid.

Thus what (1) establishes is that any true identity statement constructed from two *rigid designators* is necessarily true. To deny that 'Hesperus is Phosphorus' is necessary (given that 'Hesperus is Phosphorus' is true) while maintaining that names are rigid amounts, therefore, to rejecting (1); that is, to rejecting the way identity is handled in the orthodox semantics.¹

2. Against the Necessary *A Posteriori*

2.1. The "Easy Case" and Kripke's Thesis

[1] Such identity statements as 'Hesperus is Phosphorus', which are constructed from two distinct but co-referential names are not the only examples of the necessary *a posteriori* adduced by Kripke and other direct reference theorists. There are other kinds of alleged example: some are statements expressing theoretical identifications concerning natural phenomena perceptible to the senses and some are statements involving natural kind terms.² Examples are 'Heat is the motion of molecules' and 'Water is H₂O'.³ These other examples have attracted a great deal more attention than the examples involving only names. This, I think, is because many theorists of direct reference tend to think that, as examples of necessary *a posteriori* truths, statements of identity between names are the "easy case"—they are relatively less problematic than the other kinds of statements.

There is a grain of truth, I agree, in saying that such examples as 'Water is H₂O' and 'Heat is the motion of molecules' are more problematic. The necessity

¹See also Linsky 1977:137ff.

²And, according to some commentators on 'Naming and Necessity', statements about the origin of an individual, e.g., 'Elizabeth II is a child of George and Elizabeth Windsor'. See Chapter 1: §1.3 above.

³See e.g. Donnellan 1973 and 1983, Kripke 1971 and 1972, Putnam 1973 and 1975.

of such statements as 'Hesperus is Phosphorus' is derived *directly* from the theory of direct reference and the orthodox modal semantics, whereas the other kinds of example seem to invoke, as it has been suggested, special metaphysical theories other than what is already contained in the theory of direct reference.¹ This, however, should not be taken to mean that the case of an identity statement constructed from two names is an "easy case". To prove the thesis that the theory of direct reference entails that 'Hesperus is Phosphorus' is necessary *a posteriori* is by no means so easy or straightforward as it appears. As we shall see, there is a general and forceful objection to the thesis, and to deal with this objection, one needs to scrutinize a web of issues concerning propositions, the application of *a priori* and so on. As a matter of fact, philosophers are no less divided on the so called "easy case", as represented by 'Hesperus is Phosphorus', than on the "difficult case", as represented by 'Water is H₂O'.

Salmon's recent change of position about such examples as 'Hesperus is Phosphorus' offers an illustration of how intriguing the "easy case" can be. In *Reference and Essence*, published in 1982, he argues that no conclusive reasons have been given to suppose that 'nontrivial' examples of necessary *a posteriori*, i.e. those concerning natural kinds or origins of concrete individuals, can be derived from the theory of direct reference, without assuming some irreducibly metaphysical doctrines which are themselves philosophically controversial and nontrivially essentialist. Nevertheless, he agrees that, given the theory of direct reference, such statements as 'Hesperus is Phosphorus' are the 'clearest examples of necessary yet apparently *a posteriori* truths'.² But recently, in *Frege's Puzzle*, he entirely changes his position concerning 'these clearest examples' and argues that 'Hesperus is Phosphorus' is in fact necessary *a priori*. Interestingly, his argument is a result of a further elaboration of the theory of direct reference, for

¹See e.g. Salmon 1982.

²Salmon 1982: 78.

which he had already argued forcefully in *Reference and Essence*. (I examine Salmon's new position in Chapter 5.)

[2] In the rest of this thesis, I shall occupy myself with the alleged necessary *a posteriori* of identity statements involving only names. I shall call the following thesis 'Kripke's Thesis':

If names are directly referential, then such identity statements as 'Hesperus is Phosphorus', which are constructed from two distinct but co-referential names, are examples of necessary *a posteriori* truths.

My aim is to defend Kripke's Thesis (or briefly 'the Thesis') against the 'general but forceful objection' that I mentioned two paragraphs back. I undertake this defence in the ensuing chapters. The remainder of this chapter will be devoted to setting the stage for the defence. First, in the remainder of this section, I present the objection by setting out a problem for Kripke's Thesis. In Section 3, I consolidate the objection by examining an attempt to solve the problem—an attempt based on a suggestion by Plantinga. I shall show how the opponent of the Thesis could dismiss this attempt by employing what I shall call the 'two-propositions argument'.

A remark about the use of '*a posteriori*' and '*a priori*' is in order before we go on. Kripke says that the modality with which he is concerned when he talks about '*a priori*' is *can*, not *must*. He is concerned, for instance, with whether such statements as 'Hesperus is Phosphorus' *can* be known on the basis of *a priori* evidence. The claim that the statement 'Hesperus is Phosphorus' is (true) *a posteriori* in this sense is the same as any of the following claims:

- (a) 'Hesperus is Phosphorus' cannot be known (to be true) on *a priori* grounds.
- (b) 'Hesperus is Phosphorus' is knowable (to be true) *only a posteriori*.

- (c) 'Hesperus is Phosphorus' can only be known (to be true) on the basis of empirical investigation.
- (d) It can only be known *a posteriori* that Hesperus is Phosphorus.

2.2. An Objection to Kripke's Thesis: First Formulation

[1] Consider the following inference

- (7) Names are directly referential.
- (8) Co-referential names are substitutable *salva veritate* in the 'It can be known *a priori* that.....' (or more simply: 'It is *a priori* that ...') context. [From (7).]
- (9) It can be known *a priori* that Hesperus is Hesperus. [Evident.]
- (10) It can be known *a priori* that Hesperus is Phosphorus. [From (8), (9).]

The inference from (7) to (8) might well seem controversial. (8) asserts the substitutivity of co-referential names in a non-extensional context. But failure of substitutivity has long been regarded as characteristic of non-extensional contexts, so substitutivity in non-extensional contexts such as 'It can be known *a priori* that... ' should not be expected to follow from co-referentiality.

However, it might be argued that Kripke's Millian theory of direct reference would enable one to assert the substitutivity principle. Presumably, the argument goes, the sole function of a name, on Kripke's view, is to serve as a tag for the object referred to. Thus, given that two names are co-referential, it is hard to see how there could be any substantial difference between the two names as far as semantic functions are concerned. Pavel Tichy, for example, argues that, granting Kripke's view on names, the 'semantic function of "Hesperus" is ...exactly the same as that of "Phosphorus"'.¹ If this is right, there

¹Tichy 1983: 232.

seems no reason to reject the substitutivity principle of names in non-extensional contexts. But if (8) is correct, then (as the inference from (7) to (10) shows) the unproblematic premise (9), together with the assumption that the theory of direct reference is correct, entails that 'Hesperus is Phosphorus' can be known *a priori*.

But then, the advocate of Kripke's Thesis has a problem. (10) is clearly a counter-intuitive conclusion and it is a result of the theory of direct reference. One, of course, may adhere to the direct theory and try to explain what is wrong with our intuition. This is certainly not an easy task. But whether this can be done or not, the derivation of (10) from (7) is incompatible with Kripke's Thesis. If one wants to block the derivation by rejecting the inference from (7) to (8), then one must find fault with the line of thought presented in the last paragraph.

[2] The principle of substitutivity of names in non-extensional contexts, except perhaps in modal contexts, is, however, definitely not something which Kripke is prepared to accept. In the preface to *Naming and Necessity*, Kripke states explicitly:

Some critics of my doctrines, and sympathizers, seem to have read them as asserting, or at least implying, a doctrine of universal substitutivity of proper names.¹

But he quickly adds that he, and, for all he knows, even Mill, never intended to go so far. Even more explicit statements about his noncommitment to the substitutivity principle can be found in 'A Puzzle about Belief', for instance:

'Naming and Necessity' never asserted a substitutivity principle for epistemic contexts.²

¹Kripke 1980: 20.

²Kripke 1979: 273, note 9. For detailed discussion on substitutivity, see Kripke 1979 section I.

The opponent of The Thesis might argue that, although Kripke never asserts the principle, his view on names does imply it, and that Kripke is wrong as to what his own view implies. However, instead of getting caught up in the controversial problem of substitutivity of co-referential names, we may suggest that Kripke's opponents have another way of raising their criticism without reference to the principle of substitutivity of names.

2.3. Reformulating the Objection

[1] Let us consider the following inference:

(7) Names are directly-referential;

thus

(11) If *a* and *b* are co-referential names and *S*(*b*) is a sentence obtained from *S*(*a*) by substituting an occurrence of *b* for an occurrence of *a* in *S*(*a*), then *S*(*a*) and *S*(*b*) express the same *proposition*.

And since,

(12) Sentences expressing the same proposition are substitutable in epistemic contexts (thus if *S* and *S'* express the same proposition, then it can be known *a priori* that *S* iff it can be known *a priori* that *S'*); and

(9) It can be known *a priori* that Hesperus is Hesperus.

then,

(10) It can be known *a priori* that Hesperus is Phosphorus.

This inference still involves substitutivity. But it is substitutivity between sentences expressing the same proposition, rather than that between co-referential names. In other words, this reformulation makes use of this rule of inference:

- (A) It can be known *a priori* that P
 that P = that Q (i.e. 'P' and 'Q' express the same proposition¹)
-

It can be known *a priori* that Q;

rather than the following rule,²

- (B) It can be known *a priori* that Fa
 a = b (where 'a' and 'b' are co-referential names)
-

It can be known *a priori* that Fb.

Having distinguished these two rules, it may be suggested that only (B) is controversial, and that there is no reason to question the validity of (A), at least on the traditional understanding of 'propositions'. For according to the tradition, propositions are the objects of belief and knowledge. Thus given that P and Q express the same proposition, it is hard to see why the move from 'It can be known *a priori* that P' to 'It can be known *a priori* that Q' should be objectionable.

[2] Now we have a stronger argument against Kripke's Thesis. This argument focuses on 'propositions' and does not involve the substitutivity principle of co-referential names that Kripke rejects. However, a closer look at Kripke's comments on the substitutivity principle reveals that Kripke seems to have as much doubt about the move from (7) to (11) in the revised inference as he does about the move from (7) to (8) in the initial inference.

Here is a fuller quotation of Kripke's comment on substitutivity which we mentioned above:

¹"P" ("Q") is, of course, not intended to refer to the letter 'P' but rather to some unspecified sentence of which 'P' ('Q') serves as a dummy.

²See also Fitch 1976.

Some critics of my doctrines, and some sympathizers, seem to have read them as asserting, or at least implying, a doctrine of the universal substitutivity of proper names. This can be taken as saying that a sentence with 'Cicero' in it expresses the same 'proposition' as the corresponding one with 'Tully', that to believe the proposition expressed by the one is to believe the proposition expressed by the other, or that they are equivalent for all semantic purposes....But I (and for all I know, even Mill) never intended to go so far. My view that the English sentence 'Hesperus is Phosphorus' could sometimes be used to raise an empirical issue while 'Hesperus is Hesperus' could not shows that I do not treat the sentences as completely interchangeable. Further, it indicates that the mode of fixing the reference is relevant to our epistemic attitude toward the sentence expressed. How this relates to the question what 'propositions' are expressed by these sentences, whether these 'propositions' are objects of knowledge and belief, and in general, how to treat names in epistemic contexts, are vexing questions. I have no 'official doctrine' concerning them, and in fact I am unsure that the apparatus of 'propositions' does not break down in this area.¹

The way Kripke puts the doctrine of the universal substitutivity of proper names in this passage does not seem to agree with the way in which the doctrine is usually put. The principle, as usually construed, need make no reference to the notion of propositions. But I do not believe that it is important whether or not Kripke's understanding of the principle is non-standard. What is important, it seems to me, is that what he is objecting to is exactly the second inference presented above. This, however, must be supplemented by the following qualification. Kripke's objection is this: from his view concerning names it doesn't follow that (11) is true—at least when 'the same proposition' in (11) is understood in such a way that sentences expressing the same proposition must be equivalent for all semantic purpose and interchangeable in, at least, epistemic contexts (in addition to extensional contexts). This understanding of the notion

¹Kripke 1982: 20.

of propositions, however, is embodied in premise (12). So another way to put the matter is as follows. We may join (11) and (12) in the following way:

- (13) If *a* and *b* are co-referential names and *S*(*b*) is a sentence obtained from *S*(*a*) by substituting an occurrence of *b* for an occurrence of *a* in *S*(*a*), then *S*(*a*) and *S*(*b*) express the same proposition in the sense that sentences expressing the same proposition are interchangeable in epistemic contexts (thus if *S* and *S'* express the same proposition, then it can be known *a priori* that *S* iff it can be known *a priori* that *S'*).

And Kripke's objection can now be understood as denying that his view of names, i.e. (7), implies (13).

The opponent of Kripke's Thesis might respond to Kripke's objection as follows. Kripke is mistaken as to what his view implies. Kripke's Millian position does suggest that co-referential names cannot differ in the contribution they make to a proposition, as they are mere tags and have no 'descriptive' content. In addition, it is precisely because of the non-connotativeness of names that they have constant reference across possible worlds and, as a result, (given that it is true that Hesperus is Phosphorus) 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' express the same *necessary* proposition. Furthermore, given the classical doctrine of propositions, which takes them as the objects of knowledge and belief, it is reasonable to suppose that sentences expressing the same proposition are interchangeable in epistemic contexts. If someone rejects this construal of 'proposition', but at the same time holds Kripke's Thesis, then he must give us an alternative, plausible account of objects of belief and knowledge.

3. The 'Two-Propositions' Argument

One can make life even harder for the adherents of Kripke's Thesis by eliminating one possible, general line of defence.

This defence may be illustrated by the following view held by Plantinga regarding the *a posteriori* necessity of 'Hesperus is Phosphorus'. I'll outline the view and then present some objections on behalf of the critic of Kripke's Thesis.

[1] In *The Nature of Necessity*,¹ Plantinga makes the same claim as Kripke about the modal status of 'Hesperus is Phosphorus'. Plantinga claims that names express a very special sort of property: essence. From this, he argues, it follows that

(14) Hesperus is distinct from Phosphorus

expresses a *necessarily false* proposition. If so, then the proposition 'Hesperus is Phosphorus' expresses is *necessarily true*. On this account, it is also true that 'Hesperus is Phosphorus' expresses the *same* proposition as that expressed by 'Hesperus is Hesperus'.

But then, Plantinga thinks, we encounter a difficulty. Whereas, prior to their discovery that Hesperus is Phosphorus, the Babylonian astronomers had already accepted 'Hesperus is Hesperus' as a trifling triviality,² their discovery (that Hesperus is Phosphorus) 'was an astronomical discovery, and one of considerable magnitude'. And it is clearly possible that we should some time discover (14) to be true. If this is so, then how could the proposition expressed by 'Hesperus is Phosphorus'—which Plantinga thinks 'was discovered *a posteriori*'—be necessarily true? How is it possible that the Babylonians discovered *a posteriori* that Hesperus is Phosphorus?³

¹Plantinga 1974: 81ff.

²Like Plantinga, Kripke, and other philosophers, who make use of the 'Hesperus'-Phosphorus' example in philosophical discussions of identity, we are pretending that the following fictional sketch of astronomical history is true: the ancient Babylonians named a bright celestial body that appeared early in the evening 'Hesperus'; they also noticed a bright celestial body at dawn and named it 'Phosphorus'. But some time later the Babylonian astronomers discovered that Hesperus and Phosphorus were one and the same celestial body (known to us now as the planet Venus). We are also pretending that the ancient Babylonians spoke English.

³See Plantinga 1974: 81ff.

Plantinga offers the following solution to the problem. Consider the following scenario. Orcutt has no idea that the evening star is the morning star. Pointing to the evening sky, to Venus, one evening, Orcutt says (very slowly) 'this is *not* identical with (very long pause) *that*' (pointing to the eastern morning sky, to Venus).¹ Now what proposition would have been expressed if Orcutt had uttered 'this is identical with that' rather than 'this is not identical with that'?

In that case, the proposition that would have been expressed is the same as the proposition that an utterance 'this is identical with that' expresses when the speaker accompanies 'this' with a demonstration (a pointing to) of Venus, and, *an instant* later, accompanies 'that' the same way. Orcutt, of course, believes that if he utters the sentence 'this is identical with that' and accompanies 'this' with a demonstration of Venus, and, an instant later, 'that' the same way, he will express a *true proposition*. (But normally he will not utter such a sentence in such a way; it looks trivial to him.) This true proposition, however, is precisely the proposition he in effect denies by uttering 'this is not identical with (a very long pause) that' in the situation we described earlier. Orcutt is not appraised of this fact because he has no idea that the occurrence of 'that' in his utterance is accompanied by a demonstration of the same heavenly body as is the occurrence of 'this'. And this defect in his knowledge issues in his failure to realize what proposition is expressed by his utterance of 'this is not identical with that', and thus his failure to realize that what he is denying is the truth of an utterance which looks trivially true to him.

In the same way, Plantinga suggests that:

the Babylonian astronomers were ignorant of the fact that

(20) Hesperus is identical with Phosphorus

and

(20') Phosphorus is identical with Phosphorus

¹This is reconstructed from the scenario Plantinga describes in his 1974: 84f.

express the same proposition. They did not really know what proposition was expressed by (20). The latter did indeed express a proposition, and one with which they were acquainted. But they did not know that this proposition was the one (20) expressed. They knew that (20) expressed a proposition, and they knew that the proposition expressed by (20) was true if and only if the first heavenly body to appear in the evening had the property of lingering longer in the morning than any other heavenly body. Still, they did not know that (20) expresses the proposition that Phosphorus is identical with Phosphorus.¹

[The Babylonians' trouble] was that they did not realize that [Hesperus is Phosphorus] expresses the proposition that Hesperus is identical with Hesperus and they were not appraised of this fact because they did not know that Hesperus bore the name 'Phosphorus' as well as the name 'Hesperus'.²

So what the Babylonians failed to know before the discovery but came to know later is *not* the proposition expressed by 'Hesperus is Phosphorus'. The discovery they made is that the sentence 'Hesperus is Phosphorus' and the sentence 'Hesperus is Hesperus' express the same proposition. The truth of this proposition is not what they discovered because they already knew that it was true. No discovery was needed. However, they did not know that the sentence 'Hesperus is Phosphorus' expresses this proposition which they already knew. As a result, they needed *a posteriori* discovery in order to come to know that.

[2] If Plantinga's solution works, it will constitute a defense for Kripke's Thesis. But how does this solution fare? Not very well, it seems. There are a number of difficulties for Plantinga's solution.

Admittedly it is *not* implausible to suppose that one might fail to appreciate what proposition is expressed by a given sentence. One can easily think of a multitude of factors leading to such a failure. Linguistic incompetence

¹Plantinga 1974: 85.

²*Ibid.*, 87.

and conceptual inadequacy are two examples given by Plantinga himself.¹ However, in the particular case of the Babylonians and 'Hesperus is Phosphorus', it may be argued that it doesn't seem very plausible that the Babylonians failed to know what proposition was expressed by 'Hesperus is Phosphorus'². The line Plantinga runs seems to suggest that the Babylonians only really understood, for the first time, the meaning of 'Hesperus is Phosphorus' when they discovered that a certain star they gazed at in the evening was identical with a certain star they got up early to look at.

Even if we ignore this difficulty, Plantinga's solution still fails. First of all, Plantinga seems to accept the view that the objects of knowledge and belief are propositions. He says of propositions that they are discovered *a priori* (or *a posteriori*), and that they are known or believed³. Given this, we may restate the gist of his account in the following way.

The proposition that Hesperus is Hesperus is, according to Plantinga, the same as the proposition expressed by 'Hesperus is Phosphorus'. Let's call this proposition 'P₁', and call the proposition expressed by the following sentence P₂:⁴

- (15) 'Hesperus is Phosphorus' expresses the proposition P₁.

Plantinga contends that the Babylonians did not realize (before the discovery) that 'Hesperus is Phosphorus' expresses the proposition that Hesperus is Hesperus, viz. that they did not realize *what* proposition 'Hesperus is Phosphorus' expresses. In other words, the Babylonians did not know that (15). Granting that the objects of knowledge are propositions, this amounts to the

¹*Ibid.*, 85f.

²Thomas V. Morris (1984) expresses the same worry regarding Plantinga's view.

³For instance, 'This proposition was discovered *a posteriori*; how then could it be necessarily true?' (Plantinga 1974: 82), 'Shall we suppose that they believe (20) [= "Hesperus is identical with Phosphorus"]—the proposition—but did not know or believe that they believed it? No...' (*ibid.*, 84).

⁴That is, 'P₁' and 'P₂' (and 'P₃', which will be introduced shortly) are meant to be *names* of propositions.

contention that the proposition P_2 is what the Babylonians failed to know initially and is what their *a posteriori* discovery (that Hesperus is Phosphorus) was about.

Restating Plantinga's account in this way, we can see that it is fraught with problems. To begin with, it is not entirely unproblematic that it is an *a posteriori* matter that 'Hesperus is Phosphorus' expresses the proposition P_1 . On one construal of 'language' at least, it is arguable that, once a speaker has *really* mastered the language in which 'Hesperus is Phosphorus' is a sentence, he can know P_2 without recourse to experience. If so, it needs no *a posteriori* discovery to know that (15).

There is a more serious problem. Even if one assumes that the truth of (15) can only be discovered *a posteriori*, one still cannot claim plausibly that the truth of (15) (or the proposition P_2) is all that the Babylonians' discovery was about. The discovery was an astronomical one, not one about what a certain English sentence expresses (even though we are pretending that the Babylonians spoke English).

[3] Finally and most importantly, it may be pointed out that the line that Plantinga runs, even if it is plausible, will not deliver any genuine support for Kripke's Thesis.

Suppose our previous objections all fail and that Plantinga's central claim is plausible; that is, let us suppose that:

The *a posteriori* proposition expressed by (15), i.e. P_2 , is what the Babylonians discovered *a posteriori*.

It can be seen immediately that, in order to account for the *a posteriority* of the discovery, some proposition, in addition to P_1 , has been introduced into the picture by Plantinga. This proposition, i.e. P_2 , is regarded by Plantinga as *a posteriori*, and it serves to account for the fact that the discovery that Hesperus is Phosphorus is an *a posteriori* one. But, *is P_2 necessary, or contingent? Does*

(15) express a necessary proposition? Although Plantinga believes that 'Hesperus is Phosphorus' expresses a necessary proposition, he presumably does not think that P_2 is necessary too. His view about the modal status of 'Hesperus is Phosphorus' (or P_1)—that it is necessary—follows from his theory of essence, together with the fact that 'Hesperus is Phosphorus' is an identity statement. (15) is not about identity, so there is no reason to think that Plantinga should hold the same view in regard to (15). In fact, it is much more plausible to think that the sentence 'Hesperus is Phosphorus' would have expressed something different from what it actually does (i.e. P_1). That is, it seems more plausible to say that (15) is contingent rather than necessary¹.

The proposition P_2 is therefore *a posteriori* and contingent. Is there, then, any *single* proposition which he has shown to be both necessary and *a posteriori*? There does not seem to be one. For, on his account, what is necessary is the proposition that Hesperus is Phosphorus. Nevertheless on the same account, what has been shown to be *a posteriori* is a different proposition, P_2 , which is contingent. There are two propositions in the picture; neither has been shown to be *both* necessary and *a posteriori*. Thus even if one accepts Plantinga's solution despite its implausible consequence regarding the nature of the Babylonians' discovery, one is still not entitled to conclude that 'Hesperus is Phosphorus' expresses a necessary *a posteriori* proposition.

[4] Plantinga's account is subject to another interpretation. According to Thomas Morris's reading², the solution boils down to the claim that the proposition that the Babylonians discovered to be true and thus came to know was the proposition expressed by

¹According to some construals of 'language' and thus 'English', it is possible to argue that (15), rewritten as "'Hesperus is Phosphorus'" expresses, in English, the proposition P_1 , is necessary. But it is open to the opponents of Kripke's Thesis to argue that in that case, (15) is not *a posteriori*. In any event, it is certainly not Plantinga's intention to present (15) as a necessary statement.

²Morris 1984: 9ff.

(16) P_1 is P_3 ,

where P_3 is the proposition expressed by 'Phosphorus is Phosphorus'. Now, the last objection can no longer apply to Plantinga's solution as understood this way. For (16), unlike (15), is surely not a proposition about what a certain sentence expresses.

But, as Morris points out, a closer look at Plantinga's view reveals that (16) expresses the same proposition as that expressed by

(17) P_1 is P_1 ,

or as that expressed by

(18) P_3 is P_3 .

For Plantinga claims that P_1 and P_3 are the same proposition. Morris is certainly right here. Indeed, according to Plantinga, it seems that the problem about the *a posteriori* character of the Babylonians' discovery arises precisely because P_1 and P_3 are the same proposition and 'Phosphorus is Phosphorus' clearly expresses an *a priori* proposition.

(17) and (18) are, however, of the same form as 'Phosphorus is Phosphorus'. But, since 'Phosphorus is Phosphorus' expresses a necessary *a priori* proposition, (17) and (18) must also express the same kind of proposition. As just pointed out, (16), (17) and (18) all express the same proposition; so it follows that (16) expresses a necessary *a priori* proposition. Ergo, Plantinga's account will not explain how 'Hesperus is Phosphorus' can express a necessary *a posteriori* proposition.

This objection to Plantinga's view resembles the one raised earlier. Again, there are two propositions in the picture: P_1 and the proposition expressed by (16). This time both propositions are shown to be necessary, but neither of them is *a posteriori*.

[5] To sum up. We have seen that Plantinga's solution seems to suggest a way of defending Kripke's Thesis. This line involves a 'meta-linguistic move' which accounts for the alleged *a posteriority* of 'Hesperus is Phosphorus' in terms of some related statement, which expresses a proposition about the sentence 'Hesperus is Phosphorus' itself. But the major problem with this move is that the identity statement and the meta-linguistic statement seem to "share out", so to speak, the ascription of necessary *a posteriority* between themselves; neither of them expresses a proposition to which one may ascribe both necessity and *a posteriority*. (On Morris's reading, the problem is a little different, though it also involves two propositions. There is no 'meta-linguistic' proposition in the picture. The trouble, however, is that both propositions involved in the account are *a priori*.)

Chapter 3

Propositional Concepts and Necessary A Posteriori Truths

1. Donnellan's Observation

In 'Kripke and Putnam on Natural Kind Terms', Keith Donnellan makes the following remark:¹

If we distinguish a sentence from the proposition it expresses then the terms 'truth' and 'necessity' apply to the proposition expressed by a sentence, while the terms '*a priori*' and '*a posteriori*' are sentence relative. Given that it is true that Cicero is Tully (and whatever we need about what the relevant sentences express) 'Cicero is Cicero' and 'Cicero is Tully' express the same proposition and the *proposition* is necessarily true. But looking at the proposition through the lens of the *sentence* 'Cicero is Cicero' the proposition can be seen *a priori* to be true, but through 'Cicero is Tully' one may need an *a posteriori* investigation.

Donnellan does not elaborate this 'sentence relative view', but I think his remark is an important one. It brings into question a crucial assumption which

¹Donnellan 1983: 88, note 2.

is embedded in many discussions of Kripke's Thesis. In order to get to the bottom of the controversies surrounding Kripke's Thesis, it is necessary to bring this assumption into prominence. We may formulate the assumption as follows:

- (T) '*A posteriori*' and '*a priori*' apply primarily, and in the first instance, to propositions. A sentence is, in the derivative sense, *a priori* if the proposition it expresses is *a priori* in the primary sense; and similarly for '*a posteriori*'.¹

(T) clearly underlies the 'propositions-argument' advanced against Kripke's Thesis and discussed in the previous chapter. The notion of a proposition is central to that argument: it is argued that the proposition expressed by 'Hesperus is Phosphorus' is *a priori* on the grounds (a) that the proposition expressed by 'Hesperus is Hesperus' is *a priori* and (b) that 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' express, as a consequence of the theory of direct reference, the same proposition; then it is concluded that 'Hesperus is Phosphorus' is also *a priori*. To get this conclusion, it must be assumed that the epistemic status—*a priori*, *a posteriori*—of a statement turns on the epistemic status of the proposition it expresses: whether or not 'Hesperus is Phosphorus' is *a priori* (or *a posteriori*) depends on whether or not the proposition it expresses is *a priori* (or *a posteriori*). In other words, it must be assumed that (T). Given (T), 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' have to have the same epistemic status as long as they express the same proposition. Consequently, once it is admitted that the proposition that Hesperus is Hesperus is *a priori* (together with the premise that 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' express the same proposition), it

¹A word of clarification concerning my use of '*a priori*' and '*a posteriori*' as adjectives in predicative position. Throughout this thesis, '*is a priori*', '*is knowable a priori*', and '*can be known a priori*', should be understood as different forms of '*can be known a priori to be true*'. Also, it should be remembered that, throughout this thesis, '*is a posteriori*', '*is knowable a posteriori*', and '*is true a posteriori*', are all construed as '*can ONLY be known a posteriori to be true*' (other possible forms: '*can ONLY be known a posteriori*' and '*is knowable ONLY a posteriori*').

follows that the sentence (or statement) 'Hesperus is Phosphorus' is *a priori*. This of course is incompatible with the generally accepted claim that 'Hesperus is Phosphorus' is *a posteriori*.

The importance of Donnellan's observation is that it casts doubt on (T). According to this observation, even given that 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' express the same proposition, it will not follow that they must have the same epistemic status, i.e. must both be *a priori*, or *a posteriori*. For if '*a priori*' applies to propositions in a *sentence-relative* way (whatever that may mean), we will be able to say of the same proposition that it is *a priori* relative to a certain sentence that expresses it, but *a posteriori* relative to another sentence. And similarly for '*a posteriori*'.

Perhaps in response to Donnellan's observation one might argue that it amounts to nothing but an arbitrary suggestion about the application of '*a priori*' and '*a posteriori*', and therefore that it only lends support to Kripke's Thesis by arbitrarily stipulating that '*a priori*' and '*a posteriori*' apply to propositions in a sentence-relative way. To be sure, since the remark is so brief, it is possible to construe it as nothing more than an implicit linguistic proposal about the use of '*a priori*'. But one may also take it as a general line along which an explication of the notion of '*a priori* propositions' may be developed. It all depends on how the remark is fleshed out.

I have commented on Donnellan's observation by way of introduction, in the hope of motivating the discussion that follows. In fact, before Donnellan made his remark, some of the writings of Robert Stalnaker had already embraced some ideas which, as I shall show, can be elaborated into a 'sentence-sensitive' account of *a priori* propositions.

2. Stalnaker's Analysis of 'Hesperus is Phosphorus' in 'Propositions'

2.1. Propositions as Sets of Possible Worlds

In his paper 'Propositions', Stalnaker gives an account of how identity statements such as 'Hesperus is Phosphorus' can express a necessary truth and yet be *a posteriori*. To understand this account, we need to look at the possible worlds account of propositions, which is the basis of Stalnaker's approach to semantics and pragmatics.

The possible worlds account of propositions, perhaps the most influential analysis of propositions in the recent literature, is a by-product of the contemporary possible-worlds semantics for modal logic, which defines necessity and possibility in terms of a structure of possible worlds. On this account, a proposition is a function from possible worlds (= ways things might have been, no less and no more, for Stalnaker) to truth values.

More roughly and intuitively, a proposition is a rule for determining a truth value as a function of the facts—of the way the world is. Or, a proposition is a way—any way—of picking out a set of possible states of affairs—all those for which the proposition takes the value true.¹

On the possible worlds account, then, a proposition can also be thought of as the set of possible worlds in which the sentence expressing the proposition takes the value true.²

¹Stalnaker 1978: 316.

²Are there possible worlds? Do they exist? (Modal realism? Ersatz modal realism?) Does 'possible worlds'-talk require an ontology that recognizes quantification over nonactual objects? (Modal actualism? Nonmodal actualism? Conceptualism? Possibilism?) Is there a notion of transworld identity for entities of distinct possible worlds? (Haecceitism? Anti-Haecceitism?) I shall not consider these metaphysical and ontological issues or undertake a detailed analysis of the notion of possible worlds in this thesis. Here I can only say that possible worlds exist, at least in the sense that there are 'ways things might have been', and that a possible world is just a way things might have been, or a complete possible state of the world (of course, this says very little); and I shall leave further analysis as a (for sure, challenging) project for future work. For the

The intuitive idea behind the account is this. A proposition is a representation of the world as being a certain way. And to represent the world as being a certain way is to distinguish among alternative possible states of the world. So, given a representation of the world as being a certain way, there will be a set of possible states of the world which are that way—which conform to that representation. Every set of possible worlds, therefore, determines a proposition.

For Stalnaker, propositions play not only the role of being ‘vehicles of truth valuation’, a role captured nicely by the above definition of propositions. They are also the objects of propositional attitudes. For example, the content of a given belief.¹ The intuitive idea is that to believe something involves excluding certain possibilities, or, locating the actual world in a certain part of a logical space of possibility. To believe that *p* is to maintain that the actual world is a member of a certain set, namely the set of those possible worlds in which it is the case that *p*. What one believes can then be represented as a set of possible worlds. That is, as a proposition.

metaphysical and ontological issues, Loux 1979 is a very useful collection of important works. The most important recent work on the topic is D. Lewis 1986, which is a defense of extreme modal realism and covers most of the serious alternative views.

¹Here, some general problems may be noted. The view that propositions are objects of propositional attitudes is related to what one may call the ‘propositional analysis’ of propositional attitude ascriptions (PA-ascriptions), according to which propositions are the correct sort of entities to ascribe to the content-clauses of PA-ascriptions. But there are alternative analyses; and, indeed, various semantic theories have been proposed for the semantics of PA-ascriptions. For some discussions on this topic, see Bäuerle and Cresswell 1989; Carnap 1956; Cresswell 1980 and 1985; Davidson 1969; Dennett 1982; Field 1978; Fodor 1975; Loar 1981; McGinn 1982b; Quine 1960; Salmon and Soames 1988; Schiffer 1987; Stich 1983; Stalnaker 1976, 1978, and 1981. Also, some have argued that truth-conditional semantics, of which possible-worlds semantics is a version, cannot accommodate the semantics of PA-ascriptions. Soames 1987 is a recent expression of this view. For related discussions by possible-worlds semanticists, see, e.g., Cresswell 1973, 1975 and 1985; Hintikka 1962, 1973 and 1975; Stalnaker 1976, 1981, and 1987. See also Barwise and Perry 1981a, 1981b and 1983, for their situation semantics approach.

Thus believing or doubting a proposition involves discriminating among possibilities.¹ What happens when a person comes to know a proposition (e.g. the proposition that *p*) after first being in doubt about (or ignorant of) it, will then be something like this. Initially some possible worlds are compatible with the person's knowledge—the set of worlds which he cannot distinguish from the actual world. Then coming to know that *p* enables him to rule out some of these possibilities as no longer compatible with what he knows. What happens is therefore a change in the person's state of knowledge which involves the elimination of certain possible worlds.

2.2. The 'Hesperus is Phosphorus' Case

It seems that, from what has just been said, one can conclude that if identity statements such as 'Hesperus is Phosphorus' are necessary, it will be impossible to doubt them or to be ignorant of them; so it is hard to see how one can discover them, or come to know them *a posteriori*. For, in order to have doubt concerning the truth value of 'Hesperus is Phosphorus', there must be some possible world in which the proposition that Hesperus is Phosphorus takes the value false; and to discover that Hesperus is Phosphorus is to eliminate any such possible world as being the actual one. However, given that 'Hesperus is Phosphorus' is necessary, there will be no such worlds. What, then, does a person learn when he discovers *a posteriori* that Hesperus is identical with Phosphorus? If the discovery is *a posteriori*, then there must be some world that gets ruled out as a result of the discovery that Hesperus is Phosphorus. What, as Stalnaker asks, would such a possible world be like?

¹According to Stalnaker, the domain of discrimination need not be that of all logically possible worlds. In fact, in common communication and discourse, he thinks, the domain need only include those possibilities compatible with all the information which is taken for granted by the speaker and the audience in the conversation, that is, the possibilities among which it is the point of the discourse to discriminate. See Stalnaker 1972, 1978, and 1980.

Stalnaker's answer is as follows: there are indeed some perfectly clear and coherent possible worlds which are compatible with the initial state of the knowledge of the person (who later comes to know that Hesperus is Phosphorus) but incompatible with the new state. They are possible worlds

in which the person in question exists (since presumably he knows that he exists), and in which the proposition he would express in *that* world with the sentence 'Hesperus is identical to Phosphorus' is false.¹

In other words, Stalnaker suggests that the possible worlds which are eliminated are worlds in which the sentence 'Hesperus is Phosphorus' is used to express a false proposition.

Isn't this suggestion just a variant of Plantinga's solution? If so, one could rehearse the 'two-propositions argument' and refute it in the following way:

Now there is in question not one proposition but two. One is the necessary proposition expressed by 'Hesperus is Phosphorus'; the other is the proposition that the sentence 'Hesperus is Phosphorus' expresses a true proposition. But have we got any single proposition that is both necessary and *a posteriori*? No. The first proposition is necessary, but it is not, according to Stalnaker, what has been discovered by the astronomer. The second proposition, on the other hand, is what has been so discovered, but it cannot be necessary. For presumably Stalnaker explains the *a posteriori* of the discovery in terms of there being some possible worlds in which the second proposition takes the value false. So the second proposition is *a posteriori* but contingent. After all, Stalnaker has admitted that

the relevant object of knowledge or doubt is a proposition—a set of possible worlds—but a different one from the one that is necessarily true. There are two propositions involved, the necessary one and a

¹Stalnaker 1976: 90.

contingent one. The second is a function of the rules which determine the first.¹

I do not think, however, that Stalnaker's account is just another futile attempt which can be so easily dismissed by the 'two propositions' argument, although, unfortunately, the way he presents his (very brief) account of the necessary *a posteriori* may lead one to think otherwise. As I see the matter, Stalnaker's brief account, together with some ideas in his other writings on related topics, forms the basis for an account of necessary *a posteriori* propositions that is different from Plantinga's in a fundamental way. This account, which I am going to develop in the following sections, will reject (T) and undercut the argument presented in Chapter 2 against Kripke's Thesis.

3. Contexts, Propositional Concepts, and Two-Dimensional Operators

3.1. Contexts and the Determination of Truth Values

When I say 'The sky is blue', whether what is expressed by my utterance is true is, obviously, determined by what the world is like. As a matter of fact, the sky is blue, so my utterance expresses a true proposition. But what is expressed by my utterance might have been false if a possible world different from the actual world had obtained. Thus a proposition may be understood as the way truth values depend on facts. As noted, possible worlds are possible states of the world, so by giving a function from possible worlds into truth values we may represent the content of my utterance. If we suppose, for convenience, that there are just a limited number of possible worlds, say, *i*, *j*, and *k*, we might represent a proposition by a matrix which specifies the truth values of the proposition in various possible worlds, e.g.

¹*Ibid.*

i	j	k
T	T	F

A

But, as pointed out by Stalnaker,

there is also a second way that the *facts* enter into the determination of the truth value of what is expressed by an utterance: It is a matter of fact that an utterance has the content which it has. What one says—the proposition he expresses—is itself something that might have been different if the facts had been different...¹

Of course, there is a quite mundane sense in which this is true: the sentence 'The sky is blue' might have had a different 'meaning', and, as a result, might have expressed, say, the proposition that tigers never snore. Yet there clearly is a *non-trivial* sense too: we can say that an utterance might have a different content had some *non-linguistic* facts been different. This second, and non-trivial, way in which the truth value of what is expressed depends on the facts can best be illustrated by utterances containing indexicals, such as 'you', 'I', 'now', etc. The reference, or the extension of, say, 'I' is determined by the contexts in which the expression is used. In the case of sentences, it may be suggested that the 'content' of a sentence containing indexicals is similarly determined. Consider:

(1) I am sad now.

Different utterances of (1) in different contexts may express different propositions, in the sense of sets of possible worlds. For example, my utterance of (1) today will express a proposition roughly equivalent to that which

(2) Kai-Yee Wong is (tenselessly) sad on June 4, 1989

could have expressed when uttered by anyone in any context. And given a certain state, *S*, of the world, this proposition has a certain truth value with

¹See Stalnaker 1978: 317.

respect to *S*. But had the facts surrounding my use of (1) been different, e.g. had I uttered (1) in a different context at some other moment of time, my utterance could have expressed a proposition which has a different truth value with respect to the same state, *S*, of the world. Thus facts enter into the determination of the truth value of a particular utterance of (1) in two ways—by determining not only the truth value of the proposition expressed, but also what proposition is expressed by the utterance.

In the last two decades or so, the constraint of semantic content by facts about contexts of use and the influence of contexts on the determination of truth values have received much attention and constituted the central topic in such areas as 'formal pragmatics', 'context-sensitive semantics', 'logical pragmatics', 'double-index semantics', and 'two dimensional modal logic'.¹ In 'Assertion' and other works,² Stalnaker presents the apparatus of 'propositional concepts' as a tool for the study and analysis of various philosophical problems related to the determination of truth values by contexts, such as the problems of presupposition and indexical belief. It is also a very useful conceptual tool, or so I shall argue, for dealing with the problem of the necessary *a posteriori*.

3.2. Propositional Concepts

Possible-worlds semantics is the framework of Stalnaker's pragmatic-semantic theory. Two basic notions of this theory—the notion of a proposition and the notion of a propositional concept—are both defined in terms of 'possible

¹One can discern two major concerns in the investigations conducted in these areas: loosely put, one is about how the contents of sentences containing indexical terms vary with contexts, and the other is about the double semantic contribution of contexts or some semantic parameters to semantic content (particularly in relation to such terms as 'now', 'here'). Bearing in mind that the boundaries of the areas mentioned are by no means clear, and that there is considerable overlap, one may say that the latter concern characterizes 'double-index semantics' and 'two dimensional modal logic', and that the former is the general concern in most of the areas mentioned. See, e.g., Åqvist 1973, Bar-Hillel 1954, Hansson 1974, Kaplan 1989a, Kamp 1971, D. Lewis 1972 and 1981, Montague 1968 and 1970. For more on double-index semantics, see Chapter 4.

²See Stalnaker 1978, 1980 and 1981.

worlds'. We have already seen how a proposition can be understood as a set of possible worlds; we now approach the notion of a propositional concept by way of the following example due to Stalnaker¹.

Consider the following sentence:

(3) You are a fool.

When I say (3) in a context in which I speak to O'Leary, what I say is different from what I say with the same sentence in a different context in which I speak to someone else. Now consider the following situation. Both Daniels and I know that O'Leary *is* a fool, although O'Leary does not think so. Daniels is no fool and he knows it. I said (3) to O'Leary while Daniels was standing nearby. O'Leary understood what I said, but Daniels thought I was talking to him. So both O'Leary and Daniels thought I said something false: O'Leary understood me but disagrees with me about the facts; Daniels agrees with me about the fact (that O'Leary is a fool), but misunderstood what I said. To fill out the example, let us add that O'Leary believes that Daniels is a fool.

The following matrix, B, summarizes these facts and represents the two different ways in which the truth value of what is said by my utterance of 'You are a fool' depends on the way the world is:

	W ₁	W ₂	W ₃
W ₁	T	F	T
W ₂	T	F	T
W ₃	F	T	F

B

where W₁ is the actual world; W₂ is the world that O'Leary thinks we are in; and W₃ is the world Daniels thinks we are in. (I ignore possible worlds other than these three.) Notice that the proposition represented by the first row is the same

¹See Stalnaker 1978: 317-8, 1972: 385-387.

as the one represented by the second row, but is different from the one represented by the third row. This represents the fact that Daniels, but not O'Leary, misunderstood me. Notice also that the vertical columns under W_1 and W_3 are the same. This represents the fact that Daniels and I agree about the truth values of both the proposition I in fact expressed and the one that he mistakenly thought I expressed.

The two different ways in which facts determine the truth values of what is said correspond to the different roles possible worlds play, as represented by the matrix:

The vertical axis represents possible worlds in their role as context—as what determines what is said. The horizontal axis represents possible worlds in their role as the arguments of the function which are the propositions.¹

In Stalnaker's terminology, what a two-dimensional matrix like B represents is a *propositional concept*. A propositional concept is a function from an ordered pair of possible worlds to truth values. Or, equivalently, a propositional concept is a function from possible worlds to propositions. Since, in addition to being an evaluation circumstance (that is, in addition to being the argument of a function which is a proposition), a world may also be taken as a context in which a sentence may be used; we shall sometimes call a possible world a 'context-world' (or simply a 'context') when its role as a context needs to be indicated explicitly. But when the context is clear as to what we mean, we shall simply use 'world' (as in 'as uttered at world W_1 ') or 'context', meaning 'context-world'.

¹Stalnaker 1978: 318. Fred Kroon, in outlining Stalnaker's account, remarks that 'it is perhaps better to think of contexts as contexts of evaluation'. (Kroon 1982: note 7.) This suggestion, I think, should not be followed, as it seems to blur the crucial conceptual difference between, in Kaplan's terminology, 'context of use' and 'circumstance of evaluation'. For the significance of this distinction, see Chapter 4.

3.3. Two-Dimensional Operators

[1] Having introduced the notion of a propositional concept, let us turn now to the notion of a two-dimensional operator. A two-dimensional operator is an operator that takes a propositional concept into another propositional concept. If o is such an operator, then the meaning of o is the rule that gives you the propositional concept determined by oP in terms of the one determined by P .¹

It is helpful to compare two-dimensional operators with more traditional operators. Let us consider the extensional operator of truth-functional negation and the intensional operator of propositional necessity. Negation, \sim ,² is an extensional operator which takes extensions (truth values) to extensions (truth values). To evaluate $\sim P$, only the truth value of P is relevant. Compare this with the intensional operator of necessity. To evaluate $\Box P$ with respect to any world, not only the truth value of P with respect to that world is relevant, but also the truth value of P with respect to any other world. In other words, $\Box P$ expresses at any world the proposition that is true at that world iff the proposition expressed by P at that world is true at all possible worlds. Thus propositional necessity can be said to be one-dimensional in the following sense: the proposition expressed by $\Box P$ at any point (on the vertical axis) depends on the proposition expressed by P at that point.

One-dimensional (or intensional) operators may therefore be seen as a kind of generalization of extensional operators: 'Extensional operators take points (truth values) into points; one-dimensional operators takes horizontal lines (propositions) into horizontal lines'.³ If we take this generalization one level up, we get two-dimensional operators that take matrices (propositional

¹Stalnaker sometimes say of an utterance that it 'determines' a propositional concept, sometimes that it 'expresses' a propositional concept. I shall use 'determine' only.

²When referring to operators (such as \sim , \Box) or formulae formed with operators followed by sentence letters (such as $\sim P$, $\Box G$), I do not, in general, employ the device of quotes or quasi-quotes, except when not doing so might give rise to confusion.

³Stalnaker 1978: 320

concepts) into two-dimensional matrices. Each of the three kinds of operators—extensional, intensional, and two-dimensional operators—is a generalization of the kind preceding it.¹

To make concrete the above abstract characterization, here is an example of a two-dimensional operator.² Let us call the proposition represented by the diagonal³ of a two-dimensional matrix the 'diagonal proposition' of the relevant propositional concept. The dagger, †, is a two-dimensional operator which takes the diagonal proposition and projects it onto the horizontal. We may state the rule governing † thus:

- (R†) If a statement A determines the propositional concept A_C , then †A, when taken at the context W_i , is true with respect to the world W_j iff the diagonal proposition of A_C is true with respect to W_j .

Let me illustrate with the propositional concept, B, determined by my statement 'You are a fool' in the example given earlier. Call that statement 'U'. †U, according to Stalnaker, determines the following matrix

	W_1	W_2	W_3
W_1	T	F	F
W_2	T	F	F
W_3	T	F	F
	†B		

¹*Ibid.*, 320.

²See *ibid.*, 319.

³Since each two-dimensional matrix has two diagonals, it should therefore be pointed out that what is intended here is the diagonal which runs from the square $\langle W_1, W_1 \rangle$ to the square $\langle W_n, W_n \rangle$ of a matrix (where n is the number of worlds on each axis of the matrix, and the square $\langle W_i, W_j \rangle$ is the i 'th square of the j 'th row). In other words, the relevant diagonal is the one which runs from the top left hand square to the bottom right hand square.

As represented by this matrix, what $\uparrow U$ expresses relative to every context-world is the same proposition—the diagonal proposition of the matrix A. According to Stalnaker's characterization,

What $\uparrow B$ says is roughly this: *What is said in [Wong's] utterance of You are a fool is true*, where the definite description, *What is said in [Wong's] utterance of You are a fool* may be a nonrigid designator—a description that refers to different propositions in different worlds.¹

In general, if α^* is the diagonal proposition of the propositional concept α determined by β , then $\uparrow\beta$ expresses α^* relative to all contexts. This means that (a) for any statement Q, $\uparrow Q$ determines a constant propositional concept, and (b) when Q itself determines a constant propositional concept, $\uparrow Q$ will determine the same propositional concept as Q.

[2] What does this notion of a propositional concept have to do with the problem of the necessary *a posteriori*? The answer is that the apparatus of propositional concepts may be used to give an explication of the notion of *a priori* truth. Central to this explication is the following complex operator, square-dagger, $\square\uparrow$, which Stalnaker has introduced to explicate the distinction between *a priori* and necessary truth emphasized by Kripke. As we have seen, the dagger, \uparrow , is an operator that takes a matrix into another one by taking the diagonal proposition and projecting it onto the horizontal. The square-dagger operator is like the dagger, but it does not project directly the diagonal proposition onto the horizontal; instead it projects onto the horizontal a proposition which is a function of the modal property of the diagonal proposition. To explain, Stalnaker offers the following illustration using one of Kripke's examples.

An *a priori* truth is a statement, that, while perhaps not expressing a necessary proposition, expresses a truth in every context. This will be

¹Stalnaker 1978: 319.

the case if and only if the diagonal proposition is necessary, which is what the complex operator says. I will illustrate this with a version of one of Kripke's own examples. Suppose that in worlds i , j , and k , a certain object, a metal bar, is one, two, and three meters long, respectively, at a certain time t . Now suppose an appropriate authority fixes the reference of the expression *one meter* by making the following statement in each of the worlds i , j , and k : *This bar is one meter long*. Matrix C represents the propositional concept for this statement. Matrix $\Box\uparrow C$ represents the propositional concept for the claim that this statement is *a priori* true:

C		i	j	k
i	T	F	F	
j	F	T	F	
k	F	F	T	

$\Box\uparrow C$		i	j	k
i	T	T	T	
j	T	T	T	
k	T	T	T	

The proposition expressed by the authority is one that might have been false, although he couldn't have expressed a false proposition in that utterance.¹

The rule, (R1), governing the operator $\Box\uparrow$ is as follows: $\Box\uparrow P$, as uttered at the world i , is true with respect to a world j iff the diagonal proposition of the propositional concept determined by P is necessarily true at j .

Based on Stalnaker's definition of the A PRIORI TRUTH operator, we may define the A POSTERIORI TRUTH operator, diamond-dagger, $\Diamond\uparrow$. An illustration using the same example: matrix $\Diamond\uparrow C$ represents the propositional concept for the claim that the statement made by the authority is an *a posteriori* truth

¹*Ibid.*, 320f. For Kripke's own discussion of the example, see Kripke 1972: 54-56.

	i	j	k
i	F	F	F
j	F	F	F
k	F	F	F

$\diamond\uparrow C$

The rule, (R2), governing the operator $\diamond\uparrow$ is thus: $\diamond\uparrow P$, as uttered at the world i , is true with respect to a world j iff the diagonal proposition of the propositional concept determined by P is contingently true at j .

To forestall possible misunderstandings, here are some remarks about these two operators:

(i) Although, in the example given by Stalnaker (see the quoted passage above), adding $\square\uparrow$ to C happens to have the same result as adding \uparrow to C , the two operators are nevertheless different, as they are governed by different rules. Given (R1), $\square\uparrow A$, for any propositional concept A , is a constant propositional concept which takes a context either to a necessarily true proposition, or to an impossible (necessarily false) proposition, according as the diagonal proposition of A is necessary or not. To illustrate, suppose I uttered the following context-insensitive sentence 'The sky is blue', which determines the following propositional concept

	W_1	W_2	W_3
W_1	T	T	F
W_2	T	T	F
W_3	T	T	F

B^*

The result of applying $\square\uparrow$ to, for instance, B^* is the following propositional concept

	i	j	k
i	F	F	F
j	F	F	F
k	F	F	F

$\Box\uparrow B^*$

which says that the statement 'It is a priori true that the sky is blue', as uttered in any context is always false with respect to any world.

(ii) Although, again, for Stalnaker's example, adding $\diamond\uparrow$ to C happens to result in a propositional concept, $\diamond\uparrow C$, which is a function taking any context to an impossible proposition, yet applying the diamond-dagger to a propositional concept need not result in a propositional concept like $\diamond\uparrow C$. Applying the operator to, for instance, B^* , we get, according to (R2), the following propositional concept

	i	j	k
i	T	T	F
j	T	T	F
k	T	T	F

$\diamond\uparrow B^*$

all horizontal lines of which are contingent propositions. Indeed, given that 'The sky is blue' determines B^* (and, accordingly, that the sky is not blue in W_3), 'It is (true) *a posteriori* that the sky is blue', as uttered at any world, is false with respect to W_3 ; as it is simply false, with respect to W_3 , that the sky is blue.

(iii) Drawing on some ideas in Stalnaker's writings, I have so far characterized the square-dagger operator and introduced the diamond-dagger operator¹ with a view to providing an explication of ' ϕ is an *a priori* truth' (or, 'It is (true) *a priori* that P') and ' ϕ is an *a posteriori* truth' (or 'It is (true)

¹Stalnaker himself never offered an A POSTERIORI TRUTH operator.

a posteriori that P'.¹ Here it is important to point out that by ' ϕ is an *a priori* truth' I mean ' ϕ is a truth knowable *a priori*', rather than ' ϕ is a truth and is (in fact) known *a priori*'. Something belonging to the realm of *a priori* knowledge, as Kripke argues, can still be known, or is in fact known by a particular person on the basis of experience. What I am concerned with here is not so much *a priority* in the sense of 'being in fact known *a priori*' as in the sense of 'can be known *a priori*'. Accordingly, the notion of 'quasi-necessity' which I shall introduce later is geared to this latter sense of *a priority*.

A similar remark can be made regarding ' ϕ is an *a posteriori* truth'. The notion I am interested in is ' ϕ is a truth knowable *only a posteriori*'. Indeed I have been reading Kripke's Thesis in such a way that 'Hesperus is Phosphorus' is *not* merely an example of a necessary truth that is *in fact* known on the basis of *a posteriori* evidence. Examples of that sort seem obtainable independently of any theory of reference, at least according to some arguments which do not rest on any particular theory of reference—such as those according to which one may come to have a justified belief in some mathematical (and thus, necessary) truth on *a posteriori* grounds, by, for instance, appealing to appropriate authorities, or reliance on computer-assisted computation (as a result of which the belief is based on one's knowledge of the construction of the machine, the laws of physics, and so on).² Of course, there is still room for debate as to whether in such cases the beliefs are really justified on *a posteriori* grounds.³ But, it seems to me, this kind of example should be distinguished from the kind of example to which 'Hesperus is Phosphorus' is supposed to belong. Indeed, while it may be debatable whether computer-assisted computations or appeals to

¹Here, the ' ϕ ' in ' ϕ is an *a priori* (*a posteriori*) truth' should be taken as replaceable by the name of a sentence (or other singular term referring to a sentence), and the 'P' in 'It is (true) *a priori* (*a posteriori*) that P' should be taken as replaceable by a sentence. For example, "'Hesperus is Hesperus' is an *a priori* (*a posteriori*) truth' (or 'It is *a priori* (*a posteriori*) that Hesperus is Hesperus').

²See Kripke 1972: 35.

³See Kroon 1982 and McGinn 1976b.

authorities constitute *a posteriori evidence* for a mathematical truth, it is relatively much less problematic that 'Hesperus is Phosphorus' is *knowable only a posteriori*. It is precisely because of this that Kripke's Thesis—with '*a posteriori*' in it understood as 'knowable only *a posteriori*'—is so exciting: 'Hesperus is Phosphorus', which seems so unproblematically *a posteriori*, is also *necessary*. And our task is to give an account of how it is possible that, contrary to the traditional view, a statement can have both of these characteristics: knowability only *a posteriori* and necessity.¹

It may also be pointed out that my readings of '*a priori*' and '*a posteriori*' are related in the sense that no statement is both an *a priori* truth and an *a posteriori* truth. For, given my reading, a statement that is an *a posteriori* truth is a statement that can be known *only a posteriori*, which excludes the possibility of its being *also* knowable *a priori*. Conversely, if a statement is knowable *a priori*, then it certainly is not knowable *only a posteriori*. My characterizations of the $\diamond\uparrow$ and $\Box\uparrow$ are geared to this contrariness of '*a priori*' and '*a posteriori*'. Given (R1) and (R2), no statement S can be such that, for some context *i* and some world *j*, both $\diamond\uparrow S$ (as uttered at *i*) and $\Box\uparrow S$ (as uttered at *i*), are true with respect to *j*.²

¹My interpretation of '*a posteriori*' as 'knowable *only a posteriori*' in Kripke's Thesis might be wrong exegetically (though I believe it is not); but even if that were the case, the fact remains that the interpretation is a philosophically exciting and significant one, and definitely well worth examining.

²This can be explained as follows. Let (1) *P* be any propositional concept on which we are going to perform the operations $\Box\uparrow$ and $\diamond\uparrow$, (2) *D* be the diagonal proposition of *P*, (3) *f*(*D*) be the proposition which $\Box\uparrow$ projects onto the horizontal to form the constant propositional concept $\Box\uparrow P$ such that $\Box\uparrow P$ is a function taking any context to *f*(*D*), and (4) *g*(*D*) be the proposition which $\diamond\uparrow$ projects onto the horizontal to form the constant propositional concept $\diamond\uparrow P$ such that $\diamond\uparrow P$ is a function taking any context to *g*(*D*). *D* may be necessary, or impossible, or contingent.

- (1) If *D* is necessary, then, according to (R1), *f*(*D*) is a necessary proposition, whereas, according to (R2), *g*(*D*) is an impossible proposition.
- (2) If *D* is impossible, then, according to (R1), *f*(*D*) is an impossible proposition, and, according to (R2), *g*(*D*) is also an impossible proposition.
- (3) If *D* is contingent, then, according to (R1), *f*(*D*) is an impossible proposition, whereas, according to (R2), *g*(*D*) is a contingent proposition.

[3] Before we return to analysing the 'Hesperus is Phosphorus' example using the two-dimensional apparatus we have developed, some terminological explanations of 'utterance', 'sentence', and 'statement', which I have so far used quite freely, appear to be in order. Indeed Stalnaker uses all three in a quite loose way and offers almost no terminological explanation. The following remark aims to make things a little clearer so as to forestall unnecessary confusion.

There is scant uniformity in the use of these three terms among philosophers, and sometimes even in the writings of the same philosopher. Stalnaker's terminology is a case in point, though I think the the lack of uniformity reflects not so much confusion on his part as the subtlety of the distinctions between the three notions. By contrast with propositions, which are regarded by Stalnaker as unstructured and non-linguistic, utterances, sentences and statements are linguistic and structured entities, at least in Stalnaker's terminology.¹ Sometimes, so long as the distinction between *propositions* on the one hand, and *utterances*,² *sentences* and *statements* on the other is recognized, Stalnaker does not seem to bother with finer distinctions among the members of the latter group, particularly between sentences and statements. One point, however, about Stalnaker's use of 'utterance', 'sentence' and 'statement' must be noted. He more often than not speaks of a proposition as being expressed by a *statement* or *utterance* as it occurs in a context. But sometimes he adds the word 'token' to 'sentence' and speaks of a proposition as being expressed by a 'sentence token' as it occurs in a context-world. For example:

From this it follows that there is no point (x,y) such that the value at the point (x,y) of the matrix representing $\Box \uparrow P$ and the value at the point (x,y) of the matrix representing $\Diamond \uparrow P$ are both true.

¹There are of course other usages that are very different from Stalnaker's. For example, Susan Haack's definition of 'statement' is more like Stalnaker's definition of 'proposition' in that a statement, according to Haack's usage, is what is said when a declarative sentence is uttered. See Haack 1978: 76.

²An utterance need not, of course, take a 'sentential' form. But here we are concerned with sentential utterances.

We are interested in what the semantic account [viz. the account of propositional concepts] sketched above tells us about the proposition expressed by a certain token of the sentence "You are a fool,"....But note that this token exists, not only in the actual situation, but also in the other two possible situations I have described. So we may ask a more general question: not just, what proposition is *in fact* expressed by that sentence token, but for each of the possible situations, what proposition is expressed by the token as it occurs in that situation.¹

On the other hand, he does not seem to think 'token' is needed when 'statement', or 'utterance', is being used. The reason, I think, is that, at least on some quite common uses, 'utterance' is usually taken to mean 'sentence token', and 'statement' to mean 'a particular use of a sentence'. All of Stalnaker's examples illustrating the notion of a propositional concept focus on some particular *use* of a sentential expression. In fact, he has also written:

[The kind of function] which I have called a *propositional concept*, is determined by a particular utterance token rather than a sentence type.²

Thus it should be borne in mind that Stalnaker intends the notion to be relevant to sentential linguistic *tokens*, rather than a sentential linguistic *type*.

But to say that an utterance, or statement, in the sense of a *sentence-token*, determines a propositional concept gives rise to some subtle problems in connection with 'context dependence'. Consider again our example: 'You are a fool', which contains the indexical expression 'You', and thus is sensitive to context. Stalnaker tells us that the vertical axis of the matrix B represents possible worlds in their role *as context*. Now if, as I just said, what determines a propositional concept is a sentence-token, rather than a sentence-type, then what B represents is the content of the *same* utterance, or sentence-token (my utterance of 'You are a fool') as it occurs in various contexts. However, what

¹Stalnaker 1981: 137. I have replaced the original example with 'You are a fool'.

²Stalnaker 1980: 451.

exactly does 'the *same* utterance (sentence token)' mean here? Let U be the utterance (in the 'token' sense) I produced when I uttered 'I am tired now' last night. What sense can we make of the pairing of the U with a context, c, which is different from the one (i.e. last night, in my house,....etc.) in which U was actually produced? If I utter 'I am tired now' tomorrow night, will the utterance I produce be the same as the one I produced last night? The utterance I made last night, i.e. U, understood as a sentence token is a unique physical object. It is certainly not the same as the utterance I am going to make, if any, tomorrow night. So it may be argued that an utterance, understood as a sentence token, so to speak, "carries" with it a context in which it is produced, and is thus 'context-bound'.

Of course, utterances not confined to context are available, in a sense. I can produce, for example, an utterance, in the form of an inscription, by writing the sentence 'it is raining now' on a piece of paper—imagine that I take that piece of paper with me to the Sahara and assert that it is raining in the desert by saying something like 'I declare this' while pointing to the marks on the paper. Also, it is true that a token, as something physical, has a 'lifetime'. In fact Bar-Hillel has used the word 'token' in such a way that a sentence-inscription, for instance, is regarded as the *same token during its whole lifetime*.¹ With 'token' so understood, it is clearly conceivable that the same token can be used in different contexts. But certainly this possibility should not be over-emphasized. How do we 're-use' in a different context a token in the form of a sequence of phonemes? Who would bother to carry inscriptions around for 're-use'?

On the other hand, the notion of the same sentence (or utterance) *type* being taken in various contexts seems less problematic. Different sentence tokens used in different contexts can be tokens of the same type. So to make sense of the idea that the same sentence, or utterance, expresses different

¹Bar-Hillel 1954: 72.

contents in different contexts, it seems that we would be better off to understand 'the same sentence (utterance)' as 'sentence type (or utterance type)'.

The problem, I think, is not merely a taxonomic one concerning linguistic entities; it is also a problem about how the notion of 'context' is to be characterized. What is a context? Does a context include a possible world? Instead of taking up these questions here¹ and prolonging the digression, let me make the following remark, which I believe suffices to clear the way to the next section.

The thrust of Stalnaker's conception of a propositional concept is that, given any particular utterance of a sentence, there are some facts surrounding that utterance which determine its content; and among the possible worlds in which that particular utterance occurs, some may be worlds in which these facts might be different². So what the utterance might express depends on which of these possible worlds is actual. Now if we allow that transworld identity is intelligible and that the same physical token could be produced in another possible world, then that utterance might express different propositions in different worlds. Suppose that I utter 'That person is tired'; and among the facts surrounding my utterance is the fact that I am pointing to Peter. I certainly *could have been* pointing to a different person while uttering *that* particular sentence. In a different possible world, it might be David who is being pointed to. The theory of propositional concepts is a theory about how the facts surrounding the utterance determine the content of the utterance in various possible worlds. The fact that the utterance is, in some sense, 'context-bound' is not a problem for the theory, so far as utterances are *not* world bound.

¹But they will be dealt with in Chapter 4.

²If one finds it odd to speak of facts being different, one might understand this as meaning something like 'the same facts do not obtain'.

Following Stalnaker, I shall for the most part use 'utterance', 'sentence' and 'statement' *interchangeably* and *elliptically*, intending them to be understood as the particular use or tokening of a sentence type.

4. Explaining the Possibility of Necessary *A Posteriori* Statements

4.1. Distinguishing *A Priority* and Necessity

Kripke has warned us not to conflate *a priority* and necessity. The two-dimensional account we have presented offers a clear account of the distinction between, on the one hand, the notions of *a priority* and *a posteriority*, and on the other, the notions of necessity and contingency.

[1] From the two-dimensional point of view, *a priority* (or *a posteriority*) is a two-dimensional concept and necessity (or contingency) is a one-dimensional concept. They are as distinct from each other as are the truth-functional concept of negation and the one-dimensional concept of necessity. We may say that the negation operator is *not* intension-sensitive in the sense that what determines the truth of $\sim P$ at a certain point (or world) is just the extension, i.e. the truth value of P at that point. Given that P and Q have the same truth value (at any world i), $\sim P$ and $\sim Q$ must have the same truth value (at i), regardless of what the intension of P or of Q is. By contrast, the necessity operator is *intension-sensitive* in the sense that the truth value of $\Box P$ at a certain point turns on the intension of (i.e. the proposition expressed by) P at that point.

We can say that $\Diamond \uparrow$ and $\Box \uparrow$ are, whereas the necessity operator is *not, propositional-concept-sensitive*, in the following sense. The truth of $\Box P$ as uttered at a given possible world turns upon the proposition which P expresses at that world; what P expresses in other worlds is irrelevant. Given any statement S , S , as uttered at a given context-world c , is necessarily true with respect to a world W iff S , as uttered at c , expresses a proposition that is true with

respect to all possible worlds. Likewise, S , as uttered at a given context-world c , is contingently true with respect to a world W iff S , as uttered at c , is true with respect to W but is false with respect to some other possible world(s). S may or may not express a different proposition at some context other than c ; but that would have nothing to do with whether S , as uttered at c , expresses a necessary proposition or not. Thus so long as P and Q express the same proposition, $\Box P$ and $\Box Q$ have the same truth value, regardless of what propositional concept is determined by P or by Q . In contrast, the truth of $\Box \uparrow S$, as taken at any given context c , turns not only upon what P , as uttered at c , expresses, but also upon what P , as uttered at *other* contexts, expresses. For according to (R1), $\Box \uparrow S$, as taken at a certain context, is true (with respect to a certain world) iff the diagonal proposition of the propositional concept determined by S is necessary; and the diagonal proposition is determined by what S expresses at each context. To determine whether S is an *a priori* truth, it is therefore not sufficient just to look at what S expresses (though this is sufficient for determining whether S is a necessary truth); one needs to look at the propositional concept determined by S . Thus *a priori* is a propositional-concept-sensitive notion in a sense in which necessity is not. Similarly, *a posteriori* is a propositional-concept-sensitive notion in a sense in which contingency is not.

To facilitate exposition and for the the sake of simplicity, let me stipulate some points of terminology.

A *quasi-necessary* propositional concept is one whose diagonal proposition is a necessary proposition; whereas a *quasi-contingent* propositional concept is one whose diagonal proposition is a contingent proposition. In terms of these two notions we define '*a priori* statement (or sentence, or utterance)' and '*a posteriori* statement (or sentence, or utterance)' as follows.

For any statement (or sentence, or utterance) *S*, *S* is *a priori* iff it is true and determines a quasi-necessary propositional concept; *S* is *a posteriori* iff it is true and determines a quasi-contingent propositional concept.¹

Relativizing this *simpliciter* definition to context-worlds and worlds of evaluation, we may say that *S*, as uttered at a context-world *W*, is *a priori* iff *S* determines a quasi-necessary propositional concept at *W* and is true with respect to *W*. Similarly, we may say that *S*, as uttered at a context-world *W*, is *a posteriori* iff *S* determines a quasi-contingent propositional concept at *W* and is true with respect to *W*.

The notion of a quasi-necessary propositional concept and that of a quasi-contingent propositional concept correspond to the operator sign $\Box\uparrow$ and $\Diamond\uparrow$ in the following way. $\Box\uparrow P$ is true iff *P* expresses a quasi-necessary propositional concept and is true,² and $\Diamond\uparrow P$ is true iff *P* expresses a quasi-contingent propositional concept and is true.³ So what we have introduced above can also be regarded as convenient terminological devices which allow us to say what we want to say without using the operator signs.

[2] In this connection, we need to mention a point which follows from the above definitions of ‘*a priori* statement’ and ‘*a posteriori* statement’.

As noted, Stalnaker assigns propositional concepts to utterances, in the sense of ‘particular uses of sentences or statements’: the theory of propositional

¹Since in this definition the notion of truth is a *simpliciter* one, rather than relativized to a possible world (or put another way: since in this definition the notion of truth is implicitly “relativized” to the actual world), the words ‘is true and’ in ‘iff it is true and determines a quasi-necessary propositional concept’ are redundant. That is, the simpler clause ‘iff it determines a quasi-necessary propositional concept’ will do the job equally well. This is because if *S* determines a quasi-necessary propositional concept, then *S* is true (*simpliciter*). The longer clause has been used because one will then be able to get a definition of ‘being true *a priori* with respect to *w*’ straightforwardly by replacing the *simpliciter* use of ‘true’ in each of the two ‘iff’-clauses with a relativized one. (Strictly speaking, in that case, ‘determines’ should also be relativized as ‘determines with respect to *w*’—but see [2] below).

²The simpler clause ‘iff *P* expresses a quasi-necessary propositional concept’ could have sufficed, for a similar reason as stated in the previous note.

³The relativization of this to context-worlds and worlds of evaluation is so straightforward that I have skipped it.

concepts concerns what some particular use of a sentence would have expressed if some particular non-linguistic fact had been different, with all other facts, linguistic or non-linguistic, fixed. So while a meaningless or uninterpreted sentence (or sentence token) may be associated with more than one meaning and accordingly may express more than one proposition, for the kind of thing (particular uses of unambiguous sentences or statements) to which Stalnaker assigns propositional concepts, there is no notion of expressing more than one propositional concept. So, in our earlier example, the statement (call it 'U') that I made in uttering 'You are a fool' determines a *unique* propositional concept, despite the fact that another particular use of (the sentence type) 'You are a fool' by someone else, say Ted, may determine a different propositional concept from that determined by U. (Let's call the statement that Ted made 'V'.)¹ U and V are both particular uses of the same sentence type, and each of them determines a unique propositional concept. It may also be noted that when I say that U determines a unique propositional concept, I mean not only that U determines a unique propositional concept at the actual world, but also that it does so at every context-world. Indeed, given that U does in fact determine a unique propositional concept, it follows that it determines the same unique propositional concept in every context-world in which it occurs. For, if U determines, say, two different propositional concepts, at a certain world *i*, then there must be a world *j* at which U expresses two different propositions; this, however, is impossible given that U is a particular unambiguous use of 'You are a fool'.

¹As the 'You are a fool' example was described above, W_2 is the world O'Leary thinks we are in: a world in which I am talking to him, and in which he is not, but Daniels is, a fool. To see how V may determine a different propositional concept from that determined by U, we may now add that in using V in W_2 , Ted is talking to Daniels. W_2 , then, would be a world at which U expresses a proposition about O'Leary which is false, and at which V expresses a proposition about Daniels which is true. Accordingly, U and V do not determine the same propositional concept, as they do not express the same proposition at, at least, W_2 .

Given that a statement determines a unique propositional concept, from the above definition of '*a priori* statement' and '*a posteriori* statement' it follows that: for any context-world *i*, if *S*, as uttered at *i*, is an *a priori* statement, then *S*, as uttered at any other context-world *j* in which it expresses a true proposition, is also an *a priori* statement. Similarly for '*a posteriori*'.¹

(For simplicity, the discussions in the rest of this chapter will concentrate mainly on *a priori*, but a lot of what I say concerning *a priori* applies equally well to *a posteriori*, sometimes with adjustment regarding the modal notions that may be involved. Here are some examples. If I say:

'A priori' does not apply to sentences and propositions in the same sense,

what is said will be true of '*a posteriori*' as well. If I say:

Any statement *S* is '*a priori*' if it determines a quasi-necessary propositional concept,

what is said will also be true of '*a posteriori*' if 'quasi-necessary' is replaced by 'quasi-contingent'. Of course, when I say that 'Hesperus is Hesperus' is *a priori*, I do not mean that it is *a posteriori* as well. In general, the context will give a clear indication as to which is the case. Similar remarks apply analogously to the other pair of notions: 'necessary' and 'contingent'. The next paragraph is a case in point.)

As explicated by the theory of propositional concepts and the distinction between one-dimensional and two-dimensional operators, necessity and *a priori* are distinct things. Necessity is intension-sensitive and hence concerns propositions, while *a priori* is propositional-concept-sensitive and hence

¹The reason is this. As noted, if *S* determines a unique propositional concept *S** at *i*, then *S* determines uniquely *S** at any other context-world. On our definition, whether *S* is *a priori* depends on whether *S** is quasi-necessary. So if *S*, as uttered at *i*, is *a priori*, then *S*, as uttered at any other world in which it expresses a true proposition, is also *a priori*. Similarly, for '*a posteriori*'.

concerns propositional concepts. In the light of this explication, let us examine the thesis (T) mentioned at the beginning of this chapter.

4.2. Examining (T)

What (T) amounts to is the assumption that if two sentences are intensionally identical (that is, they express the same proposition), then they are also epistemically identical, in the sense that they are both *a priori* or both *a posteriori*. This, from the two-dimensional point of view, is incorrect.

[1] Again, a contrast with the notion of necessity will prove helpful. What (T) says will certainly agree with what we have said about necessity if we replace '*a priori*' with 'necessary', and '*a posteriori*' with 'contingent'. In other words, the following modal version of (T) is a correct assumption:

(NT) 'Necessary' and 'contingent' apply primarily, and in the first instance, to propositions. A sentence is, in the derivative sense, necessary if the proposition it expresses is necessary in the primary sense; and similarly for 'contingent'.

The square operator, i.e. \Box , is intension-sensitive, as explained above. If we take \Box as an explication of 'necessary', then whether a sentence is necessary depends on what the proposition expressed by the sentence is like—whether the proposition is true in the set of all possible worlds. Thus given that P and Q are intensionally identical, P and Q are bound to be equivalent in regard to their modal status.

No doubt one could argue that there might be some other way of explicating 'necessary' which, unlike the explication in terms of \Box , does not involve the postulation of 'propositions'. This, however, should not worry us. For one thing, the Kripke style of possible-worlds semantics is the most fruitful semantic theory we have concerning 'necessary'. Our construals of propositions and propositional necessity, \Box , are based on this theory. Furthermore, what I am

interested in here is not the question whether one can explicate 'necessary' without the postulation of propositions, but rather the question whether, given that propositions are postulated as truth bearers, necessity concerns propositions, rather than sentences in the first instance. And the answer to this question is definitely affirmative. Granting that propositions are truth bearers and that necessity is truth at all possible worlds, propositions that are true in all possible worlds are the things that in the primary sense are necessarily true. And a sentence is necessarily true, in the derivative sense, just in case it expresses a necessary proposition.

It should be noted that the formulation of (NT) ignores the possibility that some sentences do not determine a constant propositional concept, (i.e. they express different propositions in different context-worlds). So if we take into consideration two-dimensionality, (NT) may be reformulated with relativization to context:

(NT*) 'Necessary' and 'contingent' apply primarily, and in the first instance, to propositions. A sentence, as used in a context *c*, is, in the derivative sense, necessary, if the proposition it expresses at *c* is necessary in the primary sense; and similarly for 'contingent'.

This reformulation is substantially the same as (NT), since what are necessary, in the primary sense, are still propositions, and thus it is as correct as (NT).

[2] Now if the A PRIORI TRUTH operator, i.e. the square dagger operator, does give an elucidation of '*a priori*', then it would be a mistake to assume that '*a priori*' applied *primarily* to propositions, and that a sentence is *a priori* only in a derivative sense, depending on whether the proposition it expresses is *a priori* in the primary sense. For, as we have seen, *a priori*, unlike necessity, is a propositional-concept-sensitive notion. Whether a sentence is an *a priori* truth depends on whether its propositional concept is quasi-necessary. If a sentence

can be said to be *derivatively a priori* at all, its *a priori* should be derived from the propositional concept it determined, rather than the proposition it expresses.

It sounds odd, however, to say that '*a priori*' applies primarily to a propositional concept, or, indeed, applies to a propositional concept at all. If to say that something is *a priori* is to say that it is an *a priori* truth, (namely that it is true and knowable independently of experience), then certainly it would be odd to say of a propositional concept that it is *a priori*. For it is odd to say of a propositional concept that it is true. A propositional concept is what is determined by a *sentential utterance*, and a sentential utterance can be said to be true or false. A propositional concept is also a function from contexts to *propositions*, and a proposition can be said to be true or false. But a propositional concept *itself* is not something that can be said to be true or false, and accordingly not something that can be said to be true or false *a priori*. This, of course, should not be taken as a denial of the relevance of the notion of a propositional concept to that of *a priori*. The point I want to make here is that, on the two-dimensional approach, if anything can be said to be an *a priori* truth, in the first instance, then it is a sentence (or a statement, or an utterance) rather than a proposition.

In what sense should a proposition be said to be *a priori*, if the two-dimensional view is right? It is clear that a proposition cannot be *a priori* in the same sense in which a sentence is. A sentence is *a priori*, as we have seen, if the unique propositional concept it is related to, that is, the propositional concept it determines, is quasi-necessary. But in the two-dimensional view, a proposition, unlike a sentence, is not uniquely related to any propositional concept. For any proposition *p* (if we think of it in terms of a one-dimensional matrix), there are as many propositional concepts as there are two-dimensional matrices that *p* may, so to speak, "figure" in.

In what sense, then, are propositions *a priori*? In the derivative sense? Well, what exactly could that mean? As it is used in (T) and (NT), it is very clear

how 'in the derivative sense' is supposed to be taken. A sentence, according to (NT), is necessary (or is necessary with respect to a certain context) in the derivative sense if a certain proposition to which the sentence is related is necessary in the primary sense; this 'certain proposition' is, naturally, *the* proposition that the sentence expresses (or expresses with respect to a certain context, according to (NT*)). Barring ambiguities, a sentence (or a sentence with respect to a certain context) expresses a unique proposition. Thus there is no problem as to which proposition the necessity of a sentence is supposed to be *derived* from. In a like fashion, a sentence, according to (T), is *a priori* if the proposition it stands in an 'expressing' relation to is *a priori* in the primary sense.

Can we say in an analogous way that a proposition is *a priori* in the derivative sense while a sentence is *a priori* in the primary sense? Presumably this would mean that the *a priority* of a proposition is derived from the *a priority* of the sentence that it is related to in terms of 'expressing'. But, again, a proposition is not uniquely related to any sentence in terms of 'expressing'. A proposition may be expressed by indefinitely many sentences. (Indeed one major motivation for positing propositions is to provide a kind of entity which serves to be 'what is said' by different sentences in the same language or different languages.) And, as we shall see clearly, sentences expressing the same proposition may nevertheless determine different propositional concepts, which need not be all quasi-necessary or all quasi-contingent. Thus it is hard to see how a proposition can be *a priori* in the derivative sense, at least when 'derivative' is given a reading analogous to that in (T) and (NT).

It is also obvious that it is undesirable to hold that

- (D) A proposition *P* is *a priori* in the derivative sense iff there is some *a priori* sentence *S* such that *S* expresses *P*.

As mentioned, *a priority* and *a posteriority* are meant to be contrary notions. But if, as noted, sentences expressing the same proposition may determine different

propositional concepts (which need not be all quasi-necessary or all quasi-contingent), then, according to (D), some proposition will turn out to be both knowable *a priori* and knowable (*only*) *a posteriori*.

4.3. 'A Priori Propositions' as a Sentence-Relative Notion

[1] So far we have seen that, in the two-dimensional view, propositions are *not* in the first instance, *nor* in any primary sense, *a priori*. We have also seen that there does not seem to be a *derivative sense* in which they can be said to be *a priori*. The 'primary/derivative'-distinction employed in (T) just doesn't seem to fit into our two-dimensional picture. Indeed, as we shall see, what is wrong with (T) is not that it gets things the wrong way round in taking what is *a priori* in the *derivative* sense as being *a priori* in the *primary* sense. The problem with (T), from our two-dimensional point of view, is that it fails to see that as applied to propositions, *a priority* is, as I am going to suggest, a *relative notion*.

Usually when we say that X's having the property of F is S-relative, we mean X is F (or is not F) only relative to some S. For example, on a certain account of truth-value assignment, a statement's being true can be said to be *world-relative* (that is, evaluation-circumstance-relative). And this means that only relative to a world can we say of a statement that it is true.

We have seen that *a priority* is a two-dimensional concept, and that a proposition may figure in many propositional concepts, some being quasi-necessary, some being quasi-contingent.¹ Now, perhaps we can suggest that a proposition's having the property of *a priority* is propositional-concept-relative, in the following sense. A proposition P is *a priori relative to a propositional concept C*, if P figures in C and C is quasi-necessary; likewise P is *a posteriori*

¹This may not exhaust all of the possibilities because some may be quasi-impossible (with an impossible diagonal proposition). But we are interested only in quasi-necessity and quasi-contingency.

relative to a propositional concept C^* , if P figures in C^* and C^* is quasi-contingent.

There are, however, two problems with this suggestion. First, on this definition, a false proposition may turn out to be *a priori* or to be *a posteriori*. Suppose that the actual world is W_2 , then both of the following propositions

W_1	W_2	W_3
F	F	F

W_1	W_2	W_3
T	F	F

are false propositions.¹ If we treat '*a priori* propositions' as propositional-concept-relative, then the first proposition will be *a posteriori* relative to the propositional concept D ,² and the second one will be *a priori* relative to the propositional concept C . However, we do not want to say that a false proposition is '*a priori*' (which means 'true *a priori*'). The other problem is that the above definition involves abstract reference to propositions and propositional concepts by means of names (such as 'the propositional concept C '). But we should have, I think, a definition that takes account of the following two facts. First, that we customarily refer to propositions in terms of sentences expressing them; and second, that one basic way of referring to propositional concepts is also by means of sentences, as we have been doing.

The refinement to be suggested is this. A proposition P may be said to be *a priori* relative to a sentence S that expresses it iff S is *a priori*. Similarly, P may be said to be *a posteriori* relative to a sentence S' that expresses it iff S' is *a posteriori*. As defined earlier, a sentence is *a priori* (or *a posteriori*) iff it is true

¹We are operating under the general assumption that the basic notion of truth is one with relativization to possible worlds (as evaluation circumstances); so I understand 'P is true (false), period' as an abbreviation for 'P is true (false) with respect to the actual world'.

²See § 4.4. below for the propositional concept D .

and determines a quasi-necessary (or quasi-contingent) propositional concept. So no false proposition can be *a priori* (or *a posteriori*), according to this definition. Also, this definition exploits the fact that a sentence (in the sense in which we explained earlier) determines a unique propositional concept, so by relativization to sentences we obtain relativization to propositional concepts.

[2] At the beginning of this chapter it was noted that Donnellan also holds a 'sentence-relative' view of *a priori* propositions. To be sure, his remark is so briefly stated that it would be implausible to say that our sentence-relative account is what Donnellan has in mind. We may say, however, that our account offers an interesting way of fleshing out Donnellan's remark, at least according to what I think is the most plausible reading of the remark.

As it stands, the 'sentence relative' in Donnellan's remark can have at least two possible readings, depending on how 'sentence' is understood. A sentence, in one sense, is a semantically uninterpreted syntactic object on which meaning is to be conferred. Let us indicate sentences in this sense with a single asterisk, as in 'the sentence* S'. But a sentence may also be thought of as an ordered pair: <sentence*, meaning>. In this sense, a sentence is a semantically interpreted sentence*. Let us indicate such sentences with double asterisks, as in 'the sentence** S'. A sentence**-type is thus a sentential type *qua* a sentential type of a certain interpreted language. Likewise, a sentence**-token is a sentential token *qua* a token of a certain sentence**-type.

If one reads Donnellan's remark as being about 'sentence**', and accordingly thinks that he is talking about 'sentence*-relativity', then our 'sentence-relative' account is certainly very different from Donnellan's. I find it hard to believe, however, that Donnellan holds a sentence*-relative view. For it seems to me a highly implausible view. Indeed, if 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' are understood as uninterpreted and meaningless syntactic objects, it is difficult to see how there could be any epistemic difference

between "seeing", in Donnellan's words, a proposition through 'Hesperus is Hesperus' and "seeing" the same proposition through 'Hesperus is Phosphorus'.

So I just assume that what Donnellan is suggesting is a sentence**relative view. Given this construal, our sentence-relative account fleshes out Donnellan's remark by suggesting (a) that particular tokenings of different interpreted sentence-types may determine different propositional concepts and may nevertheless express the same proposition, and (b) that only relative to a particular tokening of these sentences can the proposition be said to be *a priori*, or to be *a posteriori*.

4.4. The 'Hesperus is Phosphorus' Case Revisited

[1] Equipped with the notion of sentence-relativity, let us return to Kripke's favourite example of a necessary *a posteriori* statement. For the sake of simplicity, I assume that, as in Chapter 2, 'Hesperus' and 'Phosphorus' were introduced into English in the following way. 'Hesperus' was introduced by some Babylonian astronomer of yore as a name for the celestial body which satisfied the reference-fixing description DH ('the first celestial body to appear in the evening') and 'Phosphorus' was similarly introduced as the name for the celestial body which satisfied the reference-fixing description DP ('the last celestial body to disappear in the morning'). I also assume that unbeknownst to the astronomer, DH and DP both pick out Venus. Now if the astronomer uttered 'Hesperus is Phosphorus', what proposition was expressed by his utterance?

'Reference-fixing description' is Kripke's term. In Kripke's view, names are not descriptive but directly referential. The direct-referentiality of names is compatible with the introduction of a name by means of a description (I discuss reference-fixing in more detail in Chapter 4). With such an introduction, the description is not used to fix the meaning of the name but to fix its reference. The name directly refers to the object that satisfies the description. Granting the

direct referentiality of names and the fact that DP and DH actually denote the same object, the astronomer's statement 'Hesperus is Phosphorus', as uttered in the actual world, expresses a necessarily true proposition.

Now we shall say that the statement made by the astronomer, which contains two names referring directly to Venus as a result of being introduced in the aforementioned way, also determines a propositional concept. It is worth noting that the astronomer's utterance of 'Hesperus is Phosphorus' does not express the same proposition at every context-world. Obviously, it may come to pass that the first celestial body to appear in the evening is not identical with the last celestial body to disappear in the morning sky. Let W_2 be the world where the first celestial body to appear in the evening sky is XYZ and the last celestial body to disappear in the morning is Venus. In W_2 the 'Hesperus' and the 'Phosphorus' in our astronomer's statement 'Hesperus is Phosphorus' directly refer to different objects (namely XYZ and Venus). Accordingly, in W_2 , his statement expresses a necessarily false proposition at that world. Thus, where the proposition expressed by the astronomer's statement of 'Hesperus is Phosphorus' at the actual world, W_1 , can be represented as this one-dimensional matrix:

W_1	W_2	W_3
T	T	T

the same statement expresses the following proposition at W_2 :

W_1	W_2	W_3
F	F	F

There are also worlds in which Venus is neither the first celestial body to appear in the evening nor the last celestial body to disappear in the morning, but in which the first celestial body to appear in the evening is identical with the last celestial body to disappear in the morning. That is, each such world, i , is both *similar* to and *different* from the actual world. It is similar to the actual

world in the sense that both DP and DH denote, with respect to *i*, the same object; but is different from the actual world in the sense that what DP and DH (co-)denote, with respect to *i*, is different from what they (co-)denote with respect to the actual world. If W_3 is such a world and the object denoted is Mars, then the proposition expressed by 'Hesperus is Phosphorus' at W_3 is the same as that expressed by 'Hesperus is Phosphorus' at the actual world. For what is expressed by 'Hesperus is Phosphorus' at W_3 is also a necessary proposition; and there is only one necessary proposition according to the possible world analysis of propositions—the set of all worlds.

Ignoring, for the sake of simplicity, the complications arising from the possibility of DP (or DH) being vacuous (failing to denote any object), the astronomer's statement expresses, at each context-world, either a necessary proposition or an impossible proposition. Hence, assuming as before that there is just a small finite number of possible worlds, the propositional concept determined by the astronomer's statement can be represented as:

	W_1	W_2	W_3
W_1	T	T	T
W_2	F	F	F
W_3	T	T	T
	D		

By contrast, the propositional concept determined by an utterance of 'DH is DP'¹ is the following constant two-dimensional matrix.

¹ I introduced 'DH' and 'DP' earlier as names for two descriptions, i.e. 'the first celestial body to appear in the evening' and 'the last celestial body to disappear in the morning' respectively. But when they appear in "'DH is DP'", I intend them to be understood as abbreviations for the two respective descriptions. That is, I shall use "'DH is DP'" as an abbreviation for "'The first celestial body to appear in the evening is the last celestial body to disappear in the morning'". So, for instance, the sentence to which this note is attached should be read as:

By contrast, the propositional concept determined by an utterance of 'The first celestial body to appear in the evening is the last celestial body to disappear in the morning' is the following constant two-dimensional matrix.

	W ₁	W ₂	W ₃
W ₁	T	F	T
W ₂	T	F	T
W ₃	T	F	T

E

The constancy of E must not be understood as indicating that the sentence* 'DH is DP' could not have had a different meaning. The sentence* 'DH is DP', of course, could have been used to mean, say, 'The author of *Lolita* is a Russian'. The vertical axis of a two-dimensional matrix representing a propositional concept, as mentioned, represents worlds in their role as context, which concerns the 'second way' facts enter into the determination of the truth values of what is expressed by an utterance. However, we have also noted that these facts which enter into the determination of truth values do not include linguistic facts about the meaning of an expression. We do not deny that 'DH is DP' might have had a different meaning and might thereby have expressed a different proposition, but this commonplace way in which facts enter into the determination of the truth values of what is expressed is not what the conception of propositional concepts aims to represent. We have also pointed up this by noting that propositional concepts are supposed to be assigned to interpreted, rather than uninterpreted, sentence tokens. Thus what the theory represents is the way certain kinds of fact enter into the determination of, say, what my utterance of 'You are a fool', *understood as a sentence having a certain meaning* (e.g. 'you' means 'the person being spoken to'), expresses. My utterance was addressed to O'Leary, but it could have been some other person to whom it was addressed. In that case, I would have asserted a different proposition, even though the *meaning* of the statement remained the same. Of course, my utterance of 'You are a fool' might also have expressed a different proposition simply because I might have been speaking a different language in which 'You are a fool' had an entirely different meaning. But that kind of dependence of

content on 'facts' is not what we want to study with the apparatus of propositional concepts.¹

A similar story can be told about 'Hesperus is Phosphorus'. Certainly, the circumstances surrounding the astronomer's utterance of 'Hesperus is Phosphorus' might have been different. Some celestial body other than Venus might have been the first to appear in the evening (or the last to disappear in the morning), *even though the way in which 'Hesperus' and 'Phosphorus' have their reference fixed remains the same*. If so, the astronomer's statement 'Hesperus is Phosphorus' might have expressed a different proposition. The case with 'DH is DP' is different. As explained, what is in question is not the sentence* 'DH is DP', but rather the sentence** 'DH is DP', *understood as an English sentence having a certain meaning*. This excludes the possibility that the sentence could express a different proposition as a result of having a different meaning. Thus so far as the descriptions do not contain any expressions which are sensitive to the context, there is no way we can tell the same story about 'DH is DP' as we told about 'You are a fool' and 'Hesperus is Phosphorus'.

Despite this difference between the propositional concept D and the propositional concept E, they are the same in terms of their epistemic status. On the above two-dimensional theory, both D and E are quasi-contingent. Hence, the astronomer's statement 'Hesperus is Phosphorus', is an *a posteriori* statement; so is his statement of 'DH is DP' (if we suppose that he uttered it).

On the sentence-relative view, the *proposition* expressed by 'Hesperus is Phosphorus' is, therefore, *a posteriori* relative to 'Hesperus is Phosphorus'. However the same proposition is *a priori* relative to 'Hesperus is Hesperus' because the latter statement determines a quasi-necessary propositional concept and is therefore *a priori*.

¹Thomason (1975) has discussed a model-theoretic semantics that allows for variation of semantic rules from one world to another.

[2] We, then, have a clear account of the way in which 'Hesperus is Phosphorus' is a necessary *a posteriori* statement. The resistance to the thesis that there are necessary *a posteriori* statements, as Kripke pointed out, is the unjustified conflation of the metaphysical notion of necessity and the epistemic notion of *a priority*, which has as one of its consequences (T). To remove this resistance, the present two-dimensional account offers the apparatus of propositional concepts so that the two notions can be characterized in such a way that they come out as notions pertaining to different logical-semantic levels. Necessity is a one-dimensional and intensional notion, where *a priority* and *a posteriority* are two-dimensional and propositional-concept-sensitive. This means that (T) must be abandoned. By rejecting (T) we have undermined the objection that was raised to Kripke's Thesis in Chapter 2, because that objection, as noted at the beginning of this chapter, is only forceful if (T) is assumed.

Furthermore, by rejecting (T) the two-dimensional account distinguishes itself from Plantinga's account, which is troubled by the 'two propositions' argument. The crux of that argument, as one may recall, is that a *genuine* example of a necessary *a posteriori* statement must be one that expresses a proposition to which one may attribute the properties of *a posteriority* and necessity in the same sense. This poses a serious problem for the kind of account that Plantinga has given. Operating under the very assumption (T), Plantinga sets himself the task of explaining how 'Hesperus is Phosphorus' can express a proposition to which one can both attribute the properties of necessity and *a posteriority* in the same, non-relative, sense. His explanation, however, invokes some other proposition—one expressed by a meta-linguistic statement related to 'Hesperus is Phosphorus', and what he has shown to be *a posteriori* is this other proposition. The objector to Kripke's Thesis can therefore accuse him

of failing to explain how 'Hesperus is Phosphorus' can be a genuine example of necessary *a posteriori* truth.

The 'two-propositions' argument, however, does not apply to our account. On our account, '*a priori*' and '*a posteriori*' simply do not apply to propositions in the same sense in which 'necessary' and 'contingent' apply to propositions. In fact, '*a priori*' and '*a posteriori*', on our account, apply to propositions *neither* in the primary sense, *nor* in the derivative sense. A proposition can be said to be '*a priori*', or '*a posteriori*', only relative to a sentence. A genuine example of necessary *a posteriori* truth, on our account, *does not* and *should not* turn on the availability of a necessary proposition to which '*a posteriori*' may be attributed in a *simpliciter* (non-relative) sense (be this a *simpliciter* and *primary* sense, or a *simpliciter* and *derivative* sense). A genuine example, on our account, will be an *a posteriori* statement, in the sense defined above, that expresses a necessary proposition.

Thus the 'two propositions' argument does not apply to our account. And it is *not* because we have succeeded in presenting a single necessary proposition to which one can attribute, in a *simpliciter* and primary sense (or even in a *simpliciter* and derivative sense), *a posteriority*. Rather it is because we just do not accept that the proposition expressed by 'Hesperus is Phosphorus' can be said to be *a posteriori* in a *simpliciter* sense.

Just possibly one might ask us, 'Have you or have you not given us, then, an example of a necessary *a posteriori* proposition?'; perhaps I should add the following. On our account, we can say, the *proposition* that Hesperus is Phosphorus is a necessary *a posteriori* proposition. *But* when we say that we mean *no less and no more* than that the proposition is expressed by (among others) the necessary *a posteriori* statement 'Hesperus is Phosphorus'. Yet, in the same sense, we may also say that the proposition that Hesperus is Hesperus (=the proposition that Hesperus is Phosphorus) is also necessary and *a priori*—which means *no less and no more* than that the proposition is expressed by

(among others) the necessary and *a priori* statement 'Hesperus is Hesperus'. Upon being given such an answer, one may complain, 'But we want an example of a necessary "proposition" knowable "only" *a posteriori*!' Well, my answer to this is as follows.

The proposition expressed by 'Hesperus is Phosphorus' is an example. It is necessary. It is also knowable 'only' *a posteriori*—in the sense that among the statements that express it is the statement 'Hesperus is Phosphorus', which, according to our account, is knowable only *a posteriori*.

But our inquirer may not be satisfied because our answer does not forbid us from saying that the same proposition is still *a priori* in the aforementioned sense. What we can do is perhaps to remind him that, if our account is correct, there simply is no necessary proposition which is *a posteriori* in the *simpliciter* sense.

5. Why Quasi-Necessity?

One possible complaint about the sentence-relative view of *a priority* is worth considering: "It is certainly odd to say that a proposition is *a priori* or *a posteriori* only with respect to a certain sentence or statement. We don't use '*a priori*' and '*a posteriori*' that way. We just don't say of a proposition that it is '*a priori*' or '*a posteriori*' in such a relative way. The proposition that Hesperus is Phosphorus is *a priori*, or it is *a posteriori*, period. So the sentence-relative view is nothing but a linguistic manoeuvre consisting in arbitrary linguistic stipulations. What you have achieved is nothing but an *ad hoc* justification for *a posteriori* necessity."

The question whether an explication of a concept is acceptable, or is just an arbitrary linguistic manoeuvre, is a tricky one. In responding to the above complaint, I shall do the following. First, I shall show how the two-dimensional/sentence-relative account of *a priority* offers a nice way of

understanding the notion of a *priority* by accommodating our intuitions regarding the notion. In doing this, I shall also make clear why the complaint shouldn't worry us.

[1] The core of our analysis of a *priority* is the concept of 'quasi-necessity'. What are the reasons for thinking that this concept is central to our understanding the notion of a *priority*?

To answer this question it is best to look first at the traditional view regarding a *priority* and necessity. The traditional view assimilates metaphysical modality and epistemic modality. Nathan Salmon has given a very succinct description of this assimilation:

It has been commonly held that any state of affairs that can be known to obtain only by *a posteriori* means must be metaphysically contingent, and that any fact that is metaphysically necessary can be known *a priori*. The reasoning behind this thesis is simple and intuitively appealing. Empirical investigation is investigation into particular features of the world, whereas any state of affairs that is necessary cannot depend on the peculiar features of any possible world since it obtains in every possible world regardless of that world's individual characteristics. If one has to resort to empirical means in order to determine whether or not a given state of affairs obtains, the state of affairs in question must in some way involve, or depend on, the particular features of one's circumstances. Otherwise, empirical investigation should be unnecessary. Thus, any empirical state of affairs must be contingent.

The traditional view held not only that any necessary state of affairs can be known to obtain *a priori*, but also the converse thesis that any contingent state of affairs is *a posteriori*. The reasoning behind the latter thesis consists primarily in the observation that one must empirically investigate the actual world in order to determine whether or not a given possible but unnecessary state of affairs actually obtains. Thus metaphysical and epistemic modalities were

traditionally assimilated; metaphysical necessity was identified with *a priority*, and metaphysical contingency with *a posteriority*.¹

This may be put in more congenial and contemporary terminology. Empirical investigation is investigation into particular features of our world—to locate our world in logical space, viz. to distinguish it from those possible worlds with respect to some particular features. Now given that a statement P is knowable only *by a posteriori* means—that is, to establish the truth of P, we *have to* resort to empirical investigation in order to determine whether P is a truth—then P's truth depends on whether our world happens to have some particular features, or, in other words, which possible world our world is. But, if P's truth depends on whether our world happens to have some particular features, there must be a world (viz. the world which lacks the features in question) such that if it obtained, P would be false. It follows that what P expresses cannot be a necessary proposition. For if P expresses a necessary proposition, which is true at all possible worlds, the proposition will be true at our world, no matter which features our world happens to have. But then P's truth would not depend on which possible world our world is. Thus if P is *a posteriori*, it must be contingent.

This line of thinking seems very hard to reject. It seems to boil down to one simple but appealing intuitive idea, which may be stated thus.

- (I) If we need not resort to empirical investigation in order to establish the truth of a statement, the statement must be one that is *true no matter what our world happens to be*; on the other hand, if we have to resort to empirical investigation in order to establish the truth of a statement, the statement cannot be one that is *true no matter what our world happens to be*.

Indeed I think (I) is as appealing as any intuitive idea could be. I also think that no analysis of *a priority*, be it a full or a partial one, can be adequate if it cannot

¹Salmon 1982: 76.

accommodate (I). Thus it would not be unjustified to say that (I) is part and parcel of the very concept of a *priority*. It is also true that, on the face of it, (I) seems to suggest the assimilation of a *priority* to necessity, or at least, seems to suggest the co-extensiveness of the two notions. But from the two-dimensional point of view, as I am going to argue, it is misguided to take (I) as suggesting that. Let us see why.

[2] Each point (square) on a propositional concept corresponds to a pair of worlds $\langle W_h, W_v \rangle$, where W_h is a world on the horizontal axis and W_v a world on the vertical axis. W_h plays the role of being an evaluation-world, a circumstance in which the truth value of the statement is evaluated, while W_v plays the role of being a context-world, a context in which the statement is used or produced. The points on the diagonal of a propositional concept are points where the world-of-the-context and the world-of-evaluation *coincide*, that is, where $W_h = W_v$. Equivalently we may say that on each of these points, only one world is involved, but that world plays both the role of context and the role of evaluation. For convenience, let us call such points where $W_h = W_v$ *good points*.

Now if a true statement is 'true-no-matter-what-our-world-happens-to-be'¹, then from our two-dimensional vantage point, we have the choice of taking that as meaning either

(a) that the statement expresses a necessary proposition,

or

(b) that it is true-at-every-good-point.

Let us focus on (b) and suppose that I made a *true* statement, which I shall call 'U'. I am not omniscient; so there are many worlds W such that for me W is indistinguishable from the world I (actually) inhabit—namely the context in which I (actually) produced U. For all I know, I might inhabit W . To

¹Or, equivalently, 'true-no-matter-which-possible-world-our-world-happens-to-be'.

distinguish these worlds from the actual world requires empirical investigation. This kind of investigation is investigation into particular features of the world that I inhabit—that is, investigation into particular features of the (actual) context-world in which statements that I made, am making, and shall make occur.¹ Thus my ignorance about empirical matters is also ignorance about particular features of the context-world in which I made the statement U.

(i) Now if U is such that I *have to* resort to empirical investigation in order to establish its truth, then my ignorance must relate to whether I inhabit a world with respect to which my statement U is true, or a world with respect to which U is false. Then, whether U is true or false must depend on which world I happen to inhabit, that is, on what particular features the context-world in which I produced U happens to have. Hence, if I *have to* resort to empirical investigation in order to establish the truth of U, then my statement *cannot* be one that is true-no-matter-what-our-world-happens-to-be *in the (b)-sense*.² We can say therefore that if U is true *a posteriori* (according to the traditional definition of the term, namely, it *can only be known to be true on the basis of empirical investigation*), then it is not true-at-all-good-points.³

Conversely, if my statement is not true-no-matter-what-our-world-happens-to-be, in the (b)-sense, then it could be true or could be false, depending

¹Or, equivalently, investigation into particular features of the context-world in which statements that I (actually) made, am (actually) making, and shall (actually) make occur.

²Nor false-no-matter-what-our-world-happens-to-be either, in a sense analogous to (b), of course.

³'Not true-at-all-good-points' should be understood as 'true-at-SOME-good-point(s)-but-not-all', NOT as 'false-at-all-good-points' (which is the same as NOT-TRUE-at-all-good-points, note the first hyphen). It may be remembered that (a) and (b) are supposed to be different readings of a TRUE statement's being 'true-no-matter-what-our-world-happens-to-be'. That is, we have been assuming that the statement in question, i.e. U, is true (with respect to the actual world), which entails that it is true at least at one good-point, namely at $\langle W^*, W^* \rangle$, where W^* is the actual world. Indeed, in order to serve as an example of an *a posteriori* statement (or as an example of an *a priori* statement, as in (ii) below), U must not be taken as false-at-all-good-points. If U is false-at-all-good-points, then it cannot be a true statement, and hence cannot be (true) *a posteriori*, or (true) *a priori*. Because if U is false-at-all-good-points, it will be false at $\langle W^*, W^* \rangle$, and accordingly will be false with respect to the actual world.

This applies to all uses of 'not true-at-all-good-points' below.

on which context-world I inhabit and produced U within. There are context-worlds in which my statement is true, and there are context-worlds (call them F-worlds) in which my statement is false. To know that the statement I (actually) made is true (as we assumed), I need to distinguish the actual context-world from any F-worlds. It follows that I must resort to investigation into particular features of the world. We can say therefore that if U is not true-at-all-good-points, then U is true *a posteriori* (according to the traditional definition).

(ii) On the other hand, suppose my statement, U, is *not only* true but *also* true-no-matter-what-our-world-happens-to-be, in the (b)-sense, then it is true no matter which world I happen to inhabit and make the statement in. There is no reason, then, to think that in order to establish the truth of my statement, I *must* resort to empirical investigation. For, whichever world happens to be the context-world of my statement, it is true with respect to that world—because for U to be true-no-matter-what-our-world-happens-to-be in the (b)-sense is for it to be true with respect to the very world—whichever world it is—in which it is produced. So there is no reason why in order to establish the truth of U I have to “look at”, so to speak, particular features of the actual context-world so as to distinguish it from other possible context-worlds which I might inhabit and might have produced U in. Hence, if my statement is true-no-matter-what-our-world-happens-to-be in the (b)-sense, it is knowable without resort to empirical means. Therefore we can say that if my statement is true-at-all-good-points, then it is true *a priori* (according to the traditional definition, namely, it *can be known to be true without resort to empirical investigation*).

Conversely, if to know the truth of my statement, I need *not* resort to empirical means to distinguish the world around me from the possible worlds which I might inhabit and which might be the context-world of my statement, then there is no reason to think that my statement would have expressed a false proposition had I inhabited a different world. Therefore, if my statement is true

a priori (according to the traditional definition), then it is true-at-all-good-points.

Since being not true-at-all-good-points amounts to quasi-contingency,¹ and being true-at-all-good-points amounts to quasi-necessity, what (i) and (ii) suggest is exactly the account of *a priority* and *a posteriority* that we have put forward. Hence, if we read 'our world' not only as an evaluation circumstance but also as a context-world, then the two-dimensional account of *a priority* we have expounded will do very well in accommodating the intuition (I).

Accordingly, if the two-dimensional reading of 'our world' is the correct way of spelling out the intuition (I), then, contrary to the traditional conception, (I) does not warrant the assimilation of *a priority* to necessity, nor the co-extensiveness of '*a priori*' and 'necessary'. If (I) can be said to suggest any assimilation of the epistemic notion of *a priority* to a modal notion at all, then it would be the assimilation of *a priority* to quasi-necessity (provided that we count quasi-necessity as a modal notion in some wide sense). Of course, if we read 'truth-no-matter-what-our-world-happens-to-be' differently and understand it in accordance with (a), the traditional identification of necessity with *a priority* would seem inevitable.

[3] Why should we opt for the two-dimensional understanding of the notion of 'our world' in [I] ? Well, why not? When we talk about knowing a truth independently of, or dependently on, experience, we are concerned with the truth of a statement (or, if you like, truth of the proposition expressed by a statement) with respect to *our world* as it happens to be. 'Our world'—the world which obtains and which is the circumstance with respect to which we evaluate the truth values of the statements that we utter—is *also* the context-world in which the statements uttered are located. Empirical investigation into features

¹Remember that the relevant construal of 'not true-at-all-good-points' is 'true-at-some-good-point(s)-but-not-all'.

of our world is, as noted, also investigation into features of the context in which utterances were, are, and will be, produced and located. So it seems to me quite obvious that 'our world' in [I] is *not only* the circumstance for the evaluation of the proposition expressed by the statement in question, but *also* the world in which the statement in question is produced, or is taken to express a certain proposition whose truth we are concerned with.

As it stands, and regardless of how 'our world' is read, (I) underlies both the traditional assimilation and our analysis of *a priority* in terms of quasi-necessity. Thus, instead of simply rejecting the traditional view as an unjustified conflation of epistemic concepts and modal concepts, we replace it with a view that rests on the "same" intuition, an intuition which is too compelling to ignore or to leave unexplained.

In fact, I think the traditional view, *in a sense*, also takes the notion of 'our world' as playing the dual role of context of utterance and circumstance of evaluation. Indeed, who would deny that when we say that a statement P is true, meaning that P is *true given the way our world is*, what we mean by 'our world' is *not only* the circumstance with respect to which P is evaluated *but also* the context in which P is produced and located? However, without conceptual resources of a two-dimensional kind, the distinction between the (a)-sense and the (b)-sense of true-no-matter-what-our-world-happens-to-be may elude us.

Certainly, the traditional conception of the nature of propositions has had a significant role both in blinding us from seeing the need to make the kind of distinction as is illustrated by that between (a) and (b), and, accordingly, in motivating and strengthening the traditional assimilation.

To see this, it may be noted that even from the two-dimensional vantage point, one can *still* fail to see the need for distinguishing between necessity and quasi-necessity, if one loses sight of the fact that some statement might express different propositions in different context-worlds. For quasi-necessity and propositional necessity collapse when a statement expresses the same

proposition relative to all context-worlds. Consider a statement Q , which determines the following propositional concept:

	W_1	W_2	W_3
W_1	V_1	V_2	V_3
W_2	V_1	V_2	V_3
W_3	V_1	V_2	V_3

Q^c

Q^c is a constant propositional concept. The constancy represents the fact that Q expresses the same proposition in all context-worlds. Owing to this constancy, the diagonal proposition "mirrors" the proposition represented by any of the horizontal lines. The truth value at any good point (W_i, W_i) is the same as the truth value of the proposition expressed by Q (in *any* context-world) when it is evaluated with respect to W_i . If we project the diagonal proposition to the horizontal, we will get the same proposition that Q expresses in every context-world.

So, when the proposition which Q expresses in every context-world is necessary, no good point will have the value False, and Q^c will be quasi-necessary. Likewise, if that proposition is contingent, Q^c will be quasi-contingent. In general, then, for those statements that express the same propositions across context worlds, the distinctions 'necessity/quasi-necessity' and 'contingency/quasi-contingency' are distinctions without a difference. This lack of difference is reflected by a corollary of our definitions of '*a priori* statements' and '*a posteriori* statements': any statement expressing the same proposition across contexts is necessary iff it is *a priori*, and any such statement is contingent iff it is *a posteriori*.

There is, then, no need to have (in addition to the notion of propositional necessity) the notion of quasi-necessity, provided that one holds

the view that statements do not express different propositions in different context-worlds. And such a view is embraced by the traditional conception regarding the nature of propositions. As I shall discuss in fuller detail in Chapter 5, a proposition, according to the traditional conception, is also the meaning of those statements that express it. Thus there is no notion of a statement's expressing different propositions in different context-worlds without involving any change of 'meaning'. Thinking in accordance with the traditional conception, one would regard any distinction between truth-in-all-context-worlds (even if one has such a concept) and truth-in-all-(evaluation)-circumstances as superfluous.

I hope that our challenger can now see that our sentence-relative view of *a priori* propositions is not 'a linguistic manoeuvre consisting in arbitrary linguistic stipulations'. The view is a result of our two-dimensional treatment of *a priority*. This treatment provides an explication of the concept of *a priority*. This explication exploits the same appealing intuition which underlies the traditional identification (assimilation) of *a priority* and necessity. But this treatment rejects the identification (assimilation) and gives an explanation as to how it arose.

6. Sentence-Relativity and Referring to a Proposition

However, we expect our challenger to be persistent. He or she might resist the two-dimensional treatment on these grounds: "For all you have said in favour of the two-dimensional approach, it is still not acceptable because it treats '*a priori* propositions' as a relative notion. The concept of '*a priori* proposition' is not a relative one; this is reflected by the "common use" of '*a priori*', according to which the term applies to propositions *simpliciter*."

To this we could reply: "So much the worse for the *simpliciter* view of *a priori* propositions." But, in view of some of the points that emerged from the

above discussion, I think we can do better than simply dismiss the complaint in this way.

[1] What is the source of that complaint? Presumably it is the observation that some usage regarding '*a priori*' is "standard" or "common" and according to it '*a priori*' applies to propositions in a *simpliciter* way, involving no relativization to sentences. The "data" of this observation are, presumably, such uses of '*a priori*' as in 'the proposition that Hesperus is Hesperus is *a priori*', 'it is an *a priori* truth that $2+2=4$ ' (where 'that $2+2=4$ ' is supposed to refer to the proposition that $2+2=4$, namely the proposition expressed by ' $2+2=4$ ').

These data, however, do not necessarily conflict with our sentence-relative view. From the two-dimensional point of view, the *simpliciter* use of '*a priori* proposition' may be regarded as a natural result of thinking in accordance with the traditional conception of a proposition. On the traditional conception, as noted, there is no distinction to be made between necessity and quasi-necessity because the two notions collapse into each other. Thus, a necessary proposition can "figure" only in, given our terminology, a quasi-necessary propositional concept, and can be expressed *only* by (what in our definition is) an *a priori* sentence. It follows that if a proposition is (in our sense) *a priori* relative to any particular sentence at all, then it will be (in the same sense) *a priori* relative to any sentence that expresses it. There is, then, no point in employing relativization to sentences when applying '*a priori*' and '*a posteriori*' to propositions.

Those who hold our account can therefore live easily with the "data" mentioned above, and need not think that they conflict with the relative view; as the data are explainable as a result of thinking in accordance with the traditional conception of propositions, which makes the relativization of '*a priori* propositions' to sentences pointless. We shall come back to this conception in Chapter 5.

[2] Independently of the character of the traditional conception of the nature of propositions, there is another way to point up the compatibility of *using 'a priori'* (when applying it to propositions) *simpliciter* and the sentence-relative account of *a priori* propositions. On our account a proposition may be said to be *a priori* only relative to some sentence or other, but this need not entail that the *simpliciter use* of the term '*a priori*' (when used to apply to a proposition) cannot be employed for attributing *a priori* to a proposition with relativization to a sentence. This can be explained as follows.

The above complaint appeals to "common use" of philosophical terms. But so long as we do not object to the talk of "common use" of philosophical terms, it may also be said that propositions are "commonly" *referred to* by sentences, or—if one finds it suspicious to speak of 'referring' here—*displayed* by means of a sentence. Of course it is possible to name a proposition and refer to it by, say, 'Bob' or 'Carol' or 'Ted' or 'Alice',¹ or to describe it with a description such as, for example, 'The proposition expressed by the first sentence in *Crime & Punishment*'. Yet, this is certainly not "common use". So to refer to a proposition the "common use" requires us to use or mention a sentence that expresses it, as when we employ such constructions as 'what "Hesperus is Phosphorus" expresses', 'the proposition that Hesperus is Phosphorus', 'the proposition expressed by "Hesperus is Phosphorus" ', and 'that Hesperus is Phosphorus'. Having observed this, let us consider the following "explanation" of the "common use" of '*a priori*'.

'*A priori* proposition' is a relative notion. But this need not conflict with the *simpliciter use* of '*a priori*' when applied to propositions. When taken in a certain way, such constructions as 'the proposition that so and so is *a priori*' and 'it is *a priori* that so and so' can be used to make a

¹That is, analogous to the way Kaplan names and refers to sentence tokens in his 1973 paper, the title of which—'Bob and Carol and Ted and Alice'—I am appropriating here.

sentence-relative ascription of *a priori* to a proposition. That is, the construction may be taken as ascribing *a priori* to the proposition in question *qua* what is expressed by the very sentence used to refer to it in the construction. So taken, '(The proposition) that Hesperus is Phosphorus is *a priori*', for instance, ascribes *a priori* to the proposition *that Hesperus is Phosphorus*—which, given the theory of direct reference, is the *same* as the proposition *that Hesperus is Hesperus*—relative to the sentence 'Hesperus is Phosphorus'. The relativization to the sentence 'Hesperus is Phosphorus' is not explicit but is achieved 'tacitly' by having the sentence 'Hesperus is Phosphorus' involved in the reference to the proposition in question. Thus, by exploiting the fact that some sentence is commonly used when a proposition is referred to, one can achieve the sentence-relativization in ascribing *a priori* to propositions by using '*a priori*' in a *simpliciter* way when applying it to propositions.

This seems to conflict with my preceding observation that for those thinking in accordance with the traditional conception of propositions there is no point in employing relativization to sentences when applying '*a priori*' to propositions. Yet this is not the case. Do philosophers really intend their assertion 'the proposition that so and so is *a priori*' to be a tacit sentence-relative ascription of *a priori* to the proposition in question? They may or they may not. The point of presenting the above "explanation" need not be seen as offering an account of how philosophers actually use '*a priori*', somewhat like (according to, I believe, some misconceptions of Ordinary Language Philosophy) what the ordinary language philosopher does to such ordinary words like 'believe' or 'cause'. Rather I intend the "explanation" to help dispel the worry that there is a problem for the sentence-relative view because it seems to violate (if there is such a thing as) "the common use of philosophical terms". Putting together that "explanation" with my observation in [1] above, we can see that

the "argument from common use" is of no power at all. The earlier observation in [1] pointed out that when one is held captive by the traditional conception of propositions, one sees no need to employ relativization to sentences when applying '*a priori*' to propositions; and, according to the "explanation" just offered, *even* when relativization to sentences is called for, the *simpliciter* use can achieve the relativization. Thus there is no need to worry that the fact that '*a priori*' has a *simpliciter* "common use" indicates that there must be something wrong with the very conception of the 'sentence-relative' view of *a priori* propositions.

Therefore, it can be concluded that the account of necessary *a posteriori* truths we have given is not an *ad hoc* account based on linguistic stipulation regarding '*a priori*'.

Chapter 4

Indexicality, Rigidity, and Frame Relativity

1. Introduction

This chapter deals with some problems arising in connection with the two-dimensional apparatus of 'propositional concepts' we employed in the previous chapter.

Let us start with an observation about *indexicals* (or *indexical expressions*). The central examples of indexicals are: pronouns like 'I', 'he', 'you', 'his', and 'my'; demonstratives like 'this' and 'that'; temporal and spatial expressions such as 'now', 'tomorrow', 'past', 'here', and 'there'; complex indexical expressions such as 'the day before yesterday', 'over there', and 'that table'; and so on. Along with proper names and definite descriptions, indexicals constitute a kind of device for singular reference.¹ What is common to these expressions is that their reference is dependent on, or sensitive to, the context of use; and the linguistic rules governing the expression determine which aspect of

¹In other words, I assume that there are such objects as selves, times, and places, to be picked out by the use of 'I' and 'now' and 'here'.

the context the reference is dependent on. For example, the linguistic rule for 'I' states that any use of it refers to the person who is speaking. So, with respect to the context *c* in which Jack is the speaker, 'I' refers to Jack, and with respect to another context *d* in which some other person is speaker, the expression refers to that other person. The referent of an indexical is not given once and for all, but varies with context in some systematic way. I shall use 'indexicality' and 'context dependence' interchangeably to refer to this kind of sensitivity of reference to context as exhibited by indexical expressions.

The notion of context is, as we have seen, of principal importance in the two-dimensional account we have put forward. On that account, 'Hesperus is Phosphorus' may express different propositions in different contexts because 'Hesperus' (and 'Phosphorus') may refer to different objects at different contexts. In other words, the two-dimensional account seems to suggest that 'Hesperus' exhibits *indexicality*, i.e. that its reference varies across contexts. But, one may recall, what plays the role of a context, according to that account, is precisely a *possible world*: a context, on that account, is a *context-world*. Thus, in so far as that account suggests that 'Hesperus' is indexical, it suggests that the reference of 'Hesperus' *varies across possible worlds*. This is, *prime facie*, incompatible with the Kripkean thesis that 'Hesperus', being a name, is rigid. In other words, it seems that we need to explain how we can, on the one hand, maintain that 'Hesperus' is rigid, and, on the other hand, have an account that suggests that the reference of 'Hesperus' varies with respect to different *contexts*, with the term understood as referring to context-worlds.

Section 2 of this chapter attempts to deal with this problem concerning the compatibility of rigidity and indexicality. I shall turn to the semantics of indexical expressions *par excellence*, such as 'I' and 'you' and I shall draw heavily on Kaplan's distinction between *contexts of use* and *circumstances of evaluation*, a distinction at the core of the *double-index* theory expounded by Kaplan and others, which has proved to be the most fruitful account of the logic

of indexicals. It will be shown that, according to Kaplan's semantics, indexicality and rigidity are relevant to different semantic levels, and hence are compatible.

Section 2 also serves as a springboard in that it provides the necessary background for us to formulate and appreciate the full force of another more difficult and subtle problem arising from the observation that our two-dimensional account seems to be committed to the view that 'Hesperus' is indexical. Briefly, the problem is this. An important point that will emerge from the discussion in Section 2 is that it is characteristic of an indexical expression that it has what Kaplan calls an *unstable character*, which is associated with the expression's linguistic meaning. Kaplan, however, argues that names have an unstable character because they lack a lexical meaning. If this is right, names are not indexical. But then, how are we to square this contention of Kaplan's with the observation about the two-dimensional account's commitment to an indexical construal of names? Section 3 sets out this problem. In Section 4 I explore a way out of the problem by invoking the notion of *frame relativity*. I shall argue that the purported indexicality of names, as suggested by the two-dimensional account, is actually frame relativity, rather than indexicality in the Kaplanian sense.

2. Formal Semantics, Indexicality, and Rigidity

2.1. Strategy

[1] A direct way of demonstrating the compatibility of indexicality and rigidity is to argue for the direct referentiality of indexical expressions. In fact, recent proponents of the theory of direct reference—for example, Salmon¹—regard the standard arguments for the direct referentiality of names as applicable

¹See Salmon 1982, and 1986.

to indexicals. Kaplan, in 'Demonstratives',¹ upholds what he thinks are two 'obvious principles': (1) The reference of indexicals depends on the context; (2) indexicals are directly referential. Kaplan stresses that in holding (2), he is *not* claiming that indexicals lack anything that might be called 'descriptive meaning'. In general, Kaplan thinks, indexicals have a rather easily stateable descriptive meaning. But

it is clear that this meaning is relevant only to determining a referent in a *context of use* and not to determining a relevant individual in a *circumstance of evaluation*.²

To illustrate, consider the sentence

I do not exist.

In every context of use, the 'I' in this sentence refers to the speaker in the context. But it does not follow that the descriptive meaning of 'I' (i.e. 'the person who is speaking') should be taken to be the 'propositional constituent' of what I said in uttering 'I do not exist'. Kaplan argues:

The bizarre result of taking the descriptive meaning of ['I'] to be the propositional constituent is that what I said in uttering ['I do not exist'] would be true in a circumstance of evaluation if and only if the speaker (assuming there is one) of the circumstance does not exist in the circumstance. Nonsense! [If] *that* were the correct analysis, what I said could not be true. From which it follows that

It is impossible that I do not exist.³

The crucial idea in the above argument is the distinction between 'contexts of use' (or 'contexts') and 'circumstances of evaluation' (or 'circumstances'). This distinction is the cornerstone of the double-index indexical semantics that

¹Kaplan 1989a. This influential work had been circulated in manuscript form for over a decade before its publication in 1989.

²Kaplan 1989a: 498. Italics added.

³*Ibid.*, 498.

Kaplan has developed on the basis of the works by Kamp and others.¹ For our present purposes, it is extremely important that we obtain a clear understanding of this distinction; the best way to achieve this, I think, is to take a closer look at the double-index theory in the context of formal semantics.²

My strategy is this: I shall start by describing a simple, extensional and context-*insensitive* model-theoretic semantic framework, which will then undergo enrichment and revision, with a view to obtaining, eventually, a semantic system (i) which will have the complexity necessary for representing indexicality in a way compatible with a rigid treatment of indexicals, and (ii) in which a 'context' will include a 'possible-world coordinate'. Along the way the notions of *content* and *character* will be introduced. These two notions, in particular that of character, will be central to the discussions in Section 3 and Section 4.

[2] The functional model-theoretic account that will serve as the basis of the canonical representation of the various semantic systems to be presented below is based on some ideas which can be traced back to Frege, and which have been developed by Carnap, Kripke and others.³ The contextual extension of the account has been studied by Richard Montague, Kaplan and others.⁴

On Frege's semantic view, the reference of a complex expression is determined by the references of its constituent expressions. One way to cash out this idea is in terms of the notion of functional application. Consider the

¹See Kamp 1971, Segerberg 1973, Åqvist 1973.

²Double-indexing—one index for *context* and one index for *circumstance*—is now regarded as a general requirement for a logic of indexicals. By contrast, the (single-)index theorist thinks that one can deal with the addition of indexical expressions by enlarging 'the circumstances of evaluation' (e.g. possible worlds, times) of modal logic so that one has a more general notion of an index, which is an n-tuple of 'everything but meaning that goes into determining extension' (D. Lewis 1972: 213), e.g., a world, a time, a speaker, a position, etc. But Kamp (1971) has shown that the presence of indexical temporal operators necessitates doubling indexing. Exponents of (single-)index theory include Richard Montague (1968 & 1970), Scott (1970), D. Lewis (1972). See also D. Lewis 1981.

³See e.g. Carnap 1956 and Kripke 1963a.

⁴See Montague 1970, D. Lewis 1972 and Kaplan 1979 & 1989a. See also Mondadori 1978 and Forbes 1989a: §4.

sentence 'Fa' where 'F' is a predicate and 'a' is a proper name. According to Frege, the reference of a sentence is its truth value. So to represent formally the idea that the truth value of 'Fa' is determined by the reference of 'F' and that of 'a', it is natural to assign to 'F' some formal entity which, given the object of which 'a' is the name, determines a truth value. A function from objects to truth values is the most obvious candidate. Now if we assign such a function to 'F' as its reference, we will be able get a clear account of how the reference of 'Fa' is determined by the references of its constituent expressions: the truth value of 'Fa' is the value yielded when the function assigned to F is applied to the object assigned to 'a'.

According to Frege, there is another fundamental principle: the meaning (or 'sense', in Frege's terminology) of a complex expression is determined by the meanings of its constituent expressions. Can we also cash out this principle with the notion of functional application? Obviously this principle fails if references of expressions are regarded as their meanings. 'Featherless bipeds' and 'rational animal' are true of the same class of objects (in the actual world), so their references are the same. Hence 'Men are featherless bipeds' and 'Men are rational animals' would have the same meaning if the references of 'featherless bipeds' and 'rational animal' are regarded as the meanings of the terms. But it is clearly false that the two sentences have the same meaning. Now if one believes that the principle should be preserved one will naturally favour the idea that the meaning (sense) of an expression (say, 'rational animal') depends *not* on the ways things actually are (say, on what 'rational animal' is actually true of), but also on the way things could have been.

This idea, and also the previous functional one concerning reference, is formalized by Carnap in *Meaning and Necessity* and further developed by Kripke in what is called 'possible-worlds semantics'.¹ In Carnap's formal

¹It is common to attribute possible-worlds semantics to Kripke, whose papers (1959, 1963a, 1963b, 1965) have been the most important contributions to the modern approach to

apparatus, an expression is assigned a pair of entities, an *extension* and an *intension*. I shall follow Carnap's terminology, instead of *sense* and *reference*, in the discussions that follow.¹ There is more than one way of defining the formalized notion of extension. One may think of the extension of a sentence as its truth value and the extension of a predicate as the set of objects to which the predicate truly applies (this is essentially equivalent to a function from objects to truth values). For a language which contains non-extensional operators, say 'necessarily', extensions will be assigned to expressions relative to possible worlds. The standard way of defining the intension of an expression is to think of it as a function from possible worlds to appropriate extensions therein. For instance, given a particular possible world, the intension of the predicate 'red' matches that world to the extension of 'red' relative to that world.

Kaplan and others carried the ideas further and applied them to languages with indexicals. The semantic systems presented in the following section will give some idea of how all this works. But before going into that, another remark is necessary. Since we are not interested in an investigation of formal semantics itself, the formal presentation will be brief and highly selective, focusing chiefly on defining 'models'. No syntax will be given for the languages discussed; suffice it to note, however, that the language, L_1 , that we shall start with can be thought of as a version of standard first-order predicate calculus with no non-extensional operators or indexicals. Corresponding

propositional and predicate modal logic and its semantics. Writers like Kanger (1957 and elsewhere), Hintikka (1961 and elsewhere) and others may also be regarded as originators of the new approach, but their works proved much less influential. Bull and Segerberg 1984 contains an informative historical review.

¹Although the functional approach, as we have seen, can be traced back to some ideas of Frege, it is a separate question whether the formal apparatus I am going to present gives a good model of the Fregean sense/reference semantics. In fact, as pointed out by Forbes (1989a: §4), the Kaplanian formal apparatus I shall present, owing to Kaplan's non-Fregean view, has limitations for articulating Frege's conception of how language works. Thus it is advisable not to use the Fregean terminology.

modifications should be taken as understood (for example, the adding of intensional operators or indexicals) as we proceed to more complicated systems.

2.2. Extensional Model-Theoretic Semantics

[1] The model-theoretic approach consists in assigning *semantic values* to linguistic expressions by means of semantic rules. The central notion is that of a *model*, which stipulates what kinds of things are to be assigned to the basic expressions in the object language as their semantic values. Let us, to begin with, consider the model-theoretic semantic system M_1 for L_1 . An M_1 model is an ordered pair $\langle D, f \rangle$. D , the domain, is a non-empty set, the universe of things or entities, which provides possible extensions that could be assigned by the assignment function f to the expressions of L_1 as their semantic values.

A family of extensions can be built up from D corresponding to the basic expressions of L_1 . For instance, the set of possible extensions of constant terms is the set D , the set of possible extensions for one-place predicates is $p(D)^1$, and the set of possible extensions for two-place predicates is $p(D \times D)$. The assignment function f is the function which maps any basic expression of L_1 onto its appropriate extensional domain. Suppose L_1 contains a constant term 'Quine', and a two-place predicate 'kill' then $f(\text{'Quine'}) \in D$ and $f(\text{'kill'}) \in p(D \times D)$.

A usual way of interpreting the semantics of sentential operators is to provide a recursive definition of truth (in some M_1 model) by rules such as (where P^n , is an n -place predicate, e_1, \dots, e_n are constant terms, and A and B are well-formed formulae)

$$(i) \quad P^n e_1, \dots, e_n \text{ is true iff } \langle f(e_1), \dots, f(e_n) \rangle \in f(P^n).$$

$$(ii) \quad (A \vee B) \text{ is true iff either } A \text{ is true or } B \text{ is true.}^2$$

¹I use the standard notations: $p(A)$ is the power set of A ; $A \times B$ is the cartesian product of A and B , i.e. the set of all ordered pairs of elements, the first from A and the second from B ; A^B is the set of all functions from B to A .

²Extensions for sentence operators: The semantics of the non-intensional operators of L_1 can also be accounted for in terms of *truth-functions*, which are built up from a set T which

Validity in M_1 can be defined by saying that A is valid iff A is true in every M_1 model.

[2] One feature of natural languages which the kind of extensional system just sketched does not take into account is that sentences such as 'Martha's age is 14' and 'Quine is young' can take different truth values at different moments of time. To deal with this, it is natural to relativize the assignment of semantic values, i.e. extensions, to moments of time. This suggests the following general modification of the definition of a model. As an extension of L_1 , L_2 contains sentences such as 'The age of Martha is 14' and 'Quine is young'. M_2 is a semantics for this language such that an M_2 model is a triple $\langle D, T, f \rangle$. D is defined as before and T is the set of moments of time. f will assign to expressions in L_2 just the kinds of extensions the assignment function of M_1 would assign to expressions in L_1 —except that these extensions are now relative to *indices*, in this case the members of T . To illustrate, suppose α is a term expression and F a two-place predicate. For each $t \in T$, f assigns to α a member, $\text{Ext}_t(\alpha)$, of D , and assigns to F a subset, $\text{Ext}_t(F)$, of $D \times D$. An extension so assigned can be a constant function. For example, if α is a proper name such as 'Martha', its extension will be a constant function.¹ But if α is 'Martha's age', its extension, $\text{Ext}_t(\alpha)$, will vary with t . So will the extension of F if it is 'is young'. The truth values of 'The age of Martha is 14' and 'Quine is young' will then vary with moments of time.

contains the truth values, truth and falsity. Here we may follow the convention of using the numbers 1 and 0 to play the role of truth values. An n -place truth-function is an n -place function from T to T . These functions built up from T constitute the *possible extensions* of various operators: for instance, the set of possible extensions of one-place operators is T^T , and that for two-place operators is $T^T \times T^T$. Consider, for example, the truth-functions to the sentential connectives ' \sim ' and ' \vee ' (understood to mean 'it is not the case that' and 'or' respectively). ' \sim ' may be assigned the function $N \in (T^T)$ such that $N(0) = 1$ and $N(1) = 0$; and ' \vee ' may be assigned the function $M \in (T^T \times T^T)$, such that $M(0,1) = M(1,0) = M(1,1) = 1$ and $M(0,0) = 0$.

¹That a name may in fact be used to refer to different things is a pragmatic problem about natural languages that need not concern us here.

This modification would run into difficulties, however, if we were to add to M_2 such intensional operators as ' $\%$ ', or ' \diamond ', where ' $\%(\phi)$ ' and ' $\diamond(\phi)$ ' are read 'it was the case that ϕ ' and 'it is possible that ϕ ' respectively. The problem is that M_2 renders intensional phenomena anomalous. One way to see this is to observe that M_2 would not permit uniform treatment of these added operators on the one hand and ' \sim ' and ' \vee ' on the other. Consider for example the following two sentences

- (a) The U.S. is a monarchy.
- (b) France is a monarchy.

Both sentences are false at the present time, but

- (a*) It was the case that the U.S. was a monarchy. (Read: The U.S. was once a monarchy. Similarly for (b*.)
- (b*) It was the case that France was a monarchy.

differ in truth value. In other words, while the extensional operators such as ' \sim ' and ' \vee ' can be given the same kind of extension as in M_1 except relative to indices, ' $\%$ ' cannot be treated in a similar way and be truth functional.¹ There are analogous difficulties for constructions using the modal operator 'it is possible that'.

2.3. *Intensional Model-Theoretic Semantics*

A closer look at the above examples reveals that the truth values of (a*) and (b*) at a time t depend on the truth values of (a) and (b) at some time other than t . It follows that the difficulties can be dealt with by taking into account some functions from T to truth values, and then characterizing the ' $\%$ ' in terms of these functions. We shall call these functions the 'intensions' of sentences.

¹See also Thomason 1974: § C.

To generalize this idea means to assign appropriate kinds of intensions to different kinds of expressions. These intensions, like extensions, can be constructed out of a model. Let us illustrate this by considering a language L_3 , which contains such operators as modal operators and temporal operators. An M_3 model for this language will be a quadruple $\langle W, T, D, f \rangle$, where T , D and f are defined as before.¹ Intuitively we think of W as the set of possible worlds, T as the set of moments of time, D as the set of individuals, and f as an assignment which assigns appropriate intensions to each of the basic expressions of L_3 .

Intensions assigned by f are constructed from other components of the model, i.e., W, T, D . In general, for any basic expression ϕ , $f(\phi)$ is a function from 'evaluation indices', which for M_3 are ordered-pairs whose first element is a possible world and whose second element is a moment of time,² to the appropriate extensional domain for ϕ . So if ϕ is the two-place predicate 'kill', then $f(\text{kill})$ is a function from evaluation indices to sets of ordered-pairs of individuals from D , i.e. $f(\text{kill}) \in \mathcal{P}(D \times D)^{W \times T}$. Similarly, for a constant term α in L_3 , $f(\alpha) \in D^{W \times T}$; if L_3 contains 'Quine', $f(\text{Quine})$ is a function from evaluation indices to individuals.

A recursive definition of extensions of expressions in such a system is provided by rules in terms of intensions and evaluation indices. (R1) and (R1*) are examples of such rules for, respectively, a basic expression (say, a constant, or a predicate) and a complex term, which, in this case, is the translation into L_3 of a definite description:³

$$(R1) \quad \text{Ext}_{wt}(\alpha) = \text{Int}_{\alpha}(w, t).$$

¹This semantic system is quite close to that of Montague in his 1968 and 1970 (and in some places follows the presentation of it in Sag 1981.)

²The set of these indices is thus $W \times T$.

³Here I take a definite description as having a 'meaning in isolation', rather than as an incomplete expression.

- (R1*) If x is an individual variable, then $\text{Ext}_{wt}(\text{the } x \psi) =$ the unique i that satisfies ψ with respect to $\langle w, t \rangle$, if there is such; and \dagger , otherwise.¹

(Here, for any expression ξ , ' $\text{Ext}_{wt}(\xi)$ ' designates the extension of ξ with respect to the index $\langle w, t \rangle$ and ' Int_ξ ' designates the intension assigned to ξ by f .)

Truth can then be recursively defined, with respect to an evaluation index, in terms of extensions by rules like the following one (where P^n is a n -place predicate and the e_i 's are term expressions) :

- (R2) ' $P^n e_1 \dots e_n$ ' is true with respect to $\langle w, t \rangle$ iff $\langle \text{Ext}_{wt}(e_1) \dots \text{Ext}_{wt}(e_n) \rangle \in \text{Ext}_{wt}(P^n)$.²

Once we have the notion of an intension and that of an evaluation index, such operators as ' $\%$ ' and ' \diamond ' can be treated as ones whose extensions are the functions of the intensions of the expressions within their scopes. For instance, the operator ' $\%$ ' ('it was the case that') will have the following evaluation clause

- (R3) If ϕ is any sentence of L_3 , $\%(\phi)$ is true with respect to $\langle w, t \rangle$ iff there is some $t' \in T$ such that $t' < t$ and ϕ is true with respect to $\langle w, t' \rangle$.³

(Here ' $<$ ' means 'prior to'.) In other words, if I is the set of the intensions of all suitable operands for an intensional operator, and $i \in I$, then the extension of ' $\%$ ' with respect to $\langle w, t \rangle$ can be defined thus:

- (R3*) $\text{Ext}_{wt}(\%)(i) = 1$ iff $(\exists t')(t' < t \ \& \ i(w, t') = 1)$.

¹ \dagger is a completely alien entity (i.e., not an element in W , T , or D), which renders sentences either truth-valueless or false. Some interpret \dagger as a chosen element, for instance, a^* for Carnap; see Carnap 1956, Quine 1951, and Scott 1967.

² In a more precise formulation, extension and truth would be defined not only with respect to an evaluation index but also a variable assignment function f such that, for instance, (R1) and (R2) would be revised respectively as

(a) $\text{Ext}_{wtf}(\alpha) = \text{Int}_\alpha(w, t)$

- (b) ' $P^n e_1 \dots e_n$ ', under the assignment function f , is true with respect to $\langle w, t \rangle$ iff $\langle \text{Ext}_{wtf}(e_1) \dots \text{Ext}_{wtf}(e_n) \rangle \in \text{Ext}_{wtf}(P^n)$.

³ Thus, strictly speaking, we should have also had in M_3 the component $<$, a relation linearly ordering the set T (in other words, for all $t, t' \in T$, $t < t'$ or $t' < t$ or $t = t'$).

For the modal operator ' \diamond ', we have

$$(R4) \quad \text{Ext}_{\langle w, t \rangle}(\diamond)(i) = 1 \text{ iff } (\exists w')(i(\langle w', t \rangle) = 1).^1$$

In a system like M_3 , the notion of rigidity can be represented in a fairly straightforward way. A term α is rigid just in case its denotation remains the same no matter which index it is evaluated with respect to. A natural and obvious way of representing rigidity in a framework like M_3 , therefore, is in terms of the functions from evaluation indices to extensions. That is, if a singular term α in L_3 is rigid, then its intension, namely $f(\alpha)$, is a constant function.²

We have seen how extensions and truth in L_3 depend on 'the time of evaluation' and the 'world of evaluation'. There is, however, another aspect in which extensions and truth may depend on time or possible worlds, which a system like M_3 fails to represent. The problem is that in M_3 the intension of an expression specifies a unique extension for the expression for each index. But indexical expressions such as 'I' and 'you' lack such unique extensions. 'I am F' used by me is true with respect to the index i iff with respect to i the extension of 'I', in this case, Wong, falls into the extension of F at i . But when the sentence is used by someone else, say Jack, to determine its value with respect to i , the relevant extension should be Jack, not Wong.

Take, as another example, the following temporal case,

¹On this interpretation, the extension of ' \diamond ' at $\langle w, t \rangle$ depends on all worlds *at* t . There is another interpretation according to which the extension of ' \diamond ' at $\langle w, t \rangle$ depends on all worlds *at all times*. On this second interpretation,

$$(R4^*) \quad \text{Ext}_{\langle w, t \rangle}(\diamond)(i) = 1 \text{ iff } (\exists w')(\exists t')(i(\langle w', t' \rangle) = 1).$$

It may be noted that according to (R3*) and (R4), the intensions of '%' and ' \diamond ' are not constant functions. See Forbes 1989a.

²As indices here are world-time pairs, so, according to this definition, a term is modally rigid just in case it is also temporally rigid. One can distinguish these two types of rigidity by saying that a term A , with respect to a time t^* is modally rigid just in case for every w , and every w' , $\text{Int}(A)_{\langle w, t^* \rangle} = \text{Int}(A)_{\langle w', t^* \rangle}$; and similarly for temporal rigidity. At any rate, the idea is to represent rigidity in terms of a constant function from indices to extensions.

- (a) The 22nd century is yet to come
- (b) Tomorrow is yet to come.

(a) is true when evaluated relative to 1978, but not relative to 2450. The intensional model-theoretic framework treats 'is yet to come' as having the intension N , which is a function mapping every time of evaluation¹ to some set of moments such that for all $t \in T$, $N(t) = \{t' : t < t'\}$. (That is 'is yet to come' is true of, with respect to a moment i , all sets of moments whose members are all subsequent to i .) However, (b) is not only true relative to a time in the sense in which (a) is; its truth also depends on the context of use. As uttered on Wednesday, (b) is true with respect to that day and any day prior to it — for Thursday is yet to come with respect to Wednesday or any previous day — but is false with respect Thursday and any day subsequent to it — for Thursday has already come, or is past, with respect to Thursday or any subsequent day. Thus, in order to deal with sentences such as (b) which contain indexicals (like 'yesterday', 'now', 'I', 'you' etc.), we need a framework that, in determining the extensions of basic expressions, will take into account the contexts of use, as well as times and possible worlds of evaluation. In what follows, I shall outline such a framework based on the innovative investigation into the semantics of indexicals developed by Kaplan.²

2.4. *Indexical Semantics*

What is characteristic of an indexical expression is that its extension varies with the context in which it is used. In the previous non-contextual systems, the extension of an expression varies only with respect to the evaluation index. So in order to overcome the defect of the previous system in its application to

¹For simplicity, let's for the moment think of an evaluation index as a moment of time instead of a time-world pair.

²In Kaplan 1979 and 1989a.

context-sensitive languages, the determination of truth and extension in the context-dependent semantic system M_4 , to be introduced in a moment, will involve, in addition to the evaluation index, *the context of use*.

A terminological remark is in order here. I shall follow Kaplan in using 'evaluation circumstance', or briefly, 'circumstance', for 'evaluation index'. This is because (a) M_4 is modelled on the formal apparatus developed by Kaplan and (b) 'evaluation *index*' might give rise to unnecessary confusion as we shall be saying a lot about *indexicals*. 'Context of use' and 'context' will be used interchangeably.

In recent investigations into context-dependent semantics, it is common to define a context in terms of a sequence of contextual features.¹ I shall employ the same definition here. Though, as put aptly by Lewis, contextual dependence is 'surprisingly multifarious',² in formal investigation it is convenient to consider only those features that are related to the indexicals contained in the language for which a formal interpretation is given. It is supposed that the indexicals contained in L_4 , the language in the system M_4 , are just 'I', 'here and', 'now'; a context in M_4 , as shall be seen in a moment, will therefore be a triple.

A M_4 model is a six-tuple $\langle W, D, f, T, P, C \rangle$. P and C are, respectively, the set of places and the set of contexts, and W, D, f, T , are as before. Following Kaplan, we define a context $c \in C$ as a sequence $\langle c_a, c_t, c_p \rangle$ ³, where

$c_a \in D$ (understood as the agent of c),

¹See, for instance, Montague 1968, D. Lewis 1972 and 1981, and Kaplan 1989a.

²D. Lewis 1981: 81.

³Our definition of context is of course a simplified one—since our purpose here is only to provide some necessary formal preliminaries for the discussions that follow. Moreover, a context, whether in the style of Montague or Lewis or Kaplan, invariably includes a 'possible world' coordinate (or feature). This coordinate, however, is omitted deliberately in our definition of 'context' at this stage. This is purely for strategic reasons. Since we want to bring out the main point of this section—i.e. that the distinction between indexicality and rigidity should be maintained even when the notion of a context is one that includes a possible world coordinate—in this way: we shall explain firstly how rigidity can be maintained in a context-sensitive framework and how it is distinguished from indexicality, where a 'context' does not include a possible world, and then argue that this should remain so even when we extend the notion to the inclusion of a possible world coordinate.

$c_t \in T$ (understood as the time of c),

$c_p \in P$ (understood as the place of c).

In M_4 , the extension of an expression, whether indexical or non-indexical, is defined with respect to a context and an evaluation circumstance. For any non-indexical basic expression α ,

$$(D1) \text{Ext}_{cwt}(\alpha) = f(\alpha)(w, t).$$

('Ext_{cwt}(α)' reads 'the extension of α , as taken in the context c , with respect to the evaluation circumstance $\langle w, t \rangle$ ') where f , as in L_3 , assigns to each basic non-indexical expression an intension, which is a function from evaluation circumstances to the appropriate extensional domain.

For indexical expressions in L_4 , extensions are given by the following definitions

$$(D2) \text{Ext}_{cwt}(I) = c_a.$$

$$(D3) \text{Ext}_{cwt}(\text{Now}) = c_t$$

$$(D4) \text{Ext}_{cwt}(\text{Here}) = c_p.$$

A central feature of Kaplan's indexical semantics is the way in which the notions of truth and logical validity are characterized.¹ In model-theoretic semantics, there is a general technique for defining truth and validity: a notion of truth in a model is defined, and validity is then defined as truth in every model. In intensional model-theoretic semantics, the definition of 'truth in a model'—or, 'absolute notion of truth in a model'—is usually defined as a special case of some general notion of truth relativized to evaluation indices, i.e. the special entities introduced by the interpretation of the intensional operators. For instance, in a standard modal (and non-temporal) version of M_3 ,² the *absolute* notion of truth (i.e. the notion of truth in a model) is that of truth at the 'designated world' (defined as a particular member of W , understood as the

¹See Kaplan 1979, 1989a: §XVIII. See also Forbes 1989a: §4.

²See for example the 'Kripke-model' set out in Chapter 1: § 5.2.

actual world), and the *general* notion of truth of which this is a special case is that of truth at an arbitrary world in a model. Validity will then be defined as (absolute) truth in every model. In M_4 , instead of worlds, we have evaluation indices, i.e. world-time pairs. There are also contexts. So, the characterization of truth and validity is slightly more complex. The general notion of truth in M_4 is that of truth (for some M_4 model) in a context with respect to an evaluation circumstance. A recursive definition of this notion is provided by rules like the following one: (where P^n is an n -place predicate, the e_i 's are term expressions and \mathfrak{N} is an M_4 model):

- (D5) ' $P^n e_1, \dots, e_n$ ', when taken in c (in \mathfrak{N}), is true with respect to the world w and the time t iff $\langle \text{Ext}_{cwt}(e_1), \dots, \text{Ext}_{cwt}(e_n) \rangle \in \text{Ext}_{cwt}(P^n)$.¹

Next, we define the absolute notion of truth—that of truth in a context—in terms of the general notion just defined:

- (D6) ϕ is true in a context c (in \mathfrak{N}) iff ϕ is true with respect to the circumstance comprising the world and time of c , namely with respect to $\langle c_w, c_t \rangle$.

Once this is done we can define validity as 'truth in every context in every model'.

Let me bring these technical preliminaries to an end with the following terminological remark. For the handling of tense operators, an 'evaluation circumstance' is defined in Kaplan's formal apparatus, and also in M_4 , as a world-time pair, rather than simply a possible world. This definition would unnecessarily complicate the discussion of modal rigidity to follow; so from now on I shall regard an 'evaluation circumstance' as comprising nothing but a

¹In a sharper formulation, extension and thus truth would be defined with respect to a variable assignment f assigning values to free variables. Thus (D1) and (D5), for instance, would be replaced, respectively, by

(D1') $\text{Ext}_{cwtf}(\alpha) = f(\alpha)(\langle w, t \rangle)$

(D5') ' $P^n e_1, \dots, e_n$ ', when taken in c (in \mathfrak{N} and under the assignment f), is true with respect to the world w and the time t iff $\langle \text{Ext}_{cwtf}(e_1), \dots, \text{Ext}_{cwtf}(e_n) \rangle \in \text{Ext}_{cwtf}(P^n)$.

possible world. Accordingly, (D1) to (D4) should from now on be thought of as having the form ' $\text{Ext}_{c_w}(\lambda) = \dots$ ' rather than ' $\text{Ext}_{c_w t}(\lambda) = \dots$ '.

2.5. Content and Character

[1] The formal apparatus outlined above affords us a clear account of the compatibility of indexicality and rigidity. First it may be noted that the indexical semantic system M_4 just outlined has itself incorporated both the notion of indexicality and rigidity by treating indexicals as being context-sensitive and also rigid. Although, for indexical expressions and non-indexical expressions alike, extensions in M_4 are defined relative to a context and a circumstance, the extension of a non-indexical expression is defined in such a way that it will not vary with the context. This has been shown by (D1), according to which the extension of a non-indexical expression α depends, in effect, *solely* on the assignment f : given (D1), the extension of α with respect to a context c and a circumstance w^1 looks only to w ; and whatever c is, the extension is always $f(\alpha)(w)$. On the other hand, indexical expressions are treated differently. The extension of, say, ' T ', when taken in the context c , with respect to the circumstance w , looks only to c —or more specifically, is defined simply as c_a (the agent of c), regardless of what the evaluation circumstance is. The extension of ' T ', as defined by (D2), varies from context to context and is therefore context-dependent. So by giving the different treatments above of indexical and non-indexical expressions, M_4 distinguishes indexicals and non-indexicals.

Upon closer inspection of (D2), (D3) and (D4), we can see that indexicals in M_4 are also treated as rigid designators. In this connection, it is helpful to recall how rigidity can be represented in the intensional system M_3 . We have seen that the straightforward and natural representation of the notion of rigidity in a formal apparatus like M_3 is in terms of a constant function from evaluation

¹Remember that a circumstance is now understood as a world, not a world-time pair.

circumstances to extensions. M_4 is an extension of M_3 and aims to cover both indexical and non-indexical expressions. This extension is achieved by employing *double-indexing*. That is, a 'context' index is added for the determination of extension and truth. But the notion of an evaluation circumstances in M_3 is retained in M_4 , so there is *no* reason why the idea of 'a constant function from circumstances to extensions', which serves as a straightforward and natural way of representing rigidity in M_3 , should not, or could not, suggest itself in M_4 again as a natural representation of rigidity. With rigidity so represented, it is clear that M_4 is a formal apparatus which allows indexicals to be interpreted rigidly. And in fact, indexicals in M_4 are so interpreted. For, given (D2), (D3) and (D4), the relativization of the extension of an indexical, say, 'T' to the evaluation circumstance w is *redundant*: whatever the possible world with respect to which 'T' (as taken in the context c) is evaluated, the extension is the same: the agent of c .

Given a system like M_3 , it is very clear that rigidity has to do with *intensions* because an intension is a function from circumstances to extensions. One can therefore define a singular term as rigid if its intension is a constant function. Now, strictly speaking, one *cannot* say that an indexical is associated with any *intension* because in M_4 the assignment function f , which assigns intensions, does not make any assignment for indexicals. Thus, despite the fact that indexicals in M_4 are *in effect* interpreted rigidly, one cannot offer a transparent definition of rigidity for indexicals in M_4 , as one can for any singular term in M_3 . Addressing this technical problem will lead us to the distinction between *character* and *content*. But, as will become clear, this distinction does not serve merely technical purposes. The distinction is a philosophically and conceptually significant one in its own right and will prove helpful in later discussions.

[2] The semantic framework M_4 is modelled on Kaplan's semantic system, LD, for demonstratives. For technical reasons (smoothness of formulation), Kaplan, in formulating LD, ignores the conceptual break marked by the notion of *content in a context*, as he calls it, and directly defines *denotation with respect to a world when taken in a context* and *truth with respect to a world when taken in a context*.¹ Accordingly, M_4 does not make explicit use of the notion of content in a context. I shall now introduce the notion and make explicit use of it so that the compatibility of indexicality and rigidity can be brought out in an even more transparent way.

The notions of *content in a context* and *character*, introduced by Kaplan, have proved to be very useful for the semantics of singular terms. This pair of notions is closely related to the fundamental distinction between contexts and circumstances of evaluation and thus to the double-indexing approach to the logic of indexicality. Let us look at *content in a context* (or *content*, for short) first. According to Kaplan, indexicals and expressions containing them, 'will, in general, express different concepts in different contexts'; and he calls 'the concept expressed in a given context the *content* of the expression in that context'.² If we write ' $\{\lambda\}_c$ ' for 'The content of λ in the context c ', then Kaplan's formal definition for the notion of content in a context is³

(D7) Where λ is a formula, $\{\lambda\}_c$ is that function which assigns to each $w \in W$, Truth, if λ , when taken in the context c , is true with respect to the world w . (Where 'truth-in-a-context-with-respect-to- w ' is understood as defined by rules like (D5))

(D8) Where ' λ ' is a term, $\{\lambda\}_c$ is that function which assigns to each $w \in W$, $\text{Ext}_{cw}(\lambda)$.

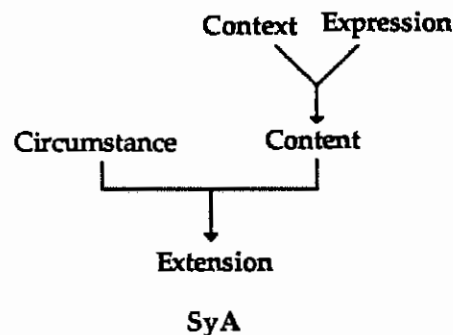
¹That is, he directly defines ' \models_{cftw}^N ' and ' $\models_{cftw}^N \alpha$ '. See Kaplan 1989a: 544-545.

²Kaplan 1989a: 546.

³*Ibid.*

In the case of a non-indexical term, the content does not differ significantly from the intension assigned to the term by f , except that the notion of content is relativized to contexts. But a non-indexical term is context-independent and thus has the same content relative to every context, so its intension is identical to its content in any context. From this one can see that the introduction of the concept of content concerns mainly indexical terms and sentences. Whereas in the original formulation of M_4 the notion of intension is for non-indexical terms exclusively, we now have a notion which is similar to 'intension' but which applies to all three kinds of expressions: non-indexical terms, indexical terms, and sentences. The content that a sentence expresses in a context is a function from possible worlds to truth values, and is just a 'proposition' in exactly the sense in which it is understood in the possible worlds account of propositions.

With the notion of content, we can convert M_4 into a system, SyA , in which the notion features explicitly. Diagrammatically, the structure of SyA is thus:¹

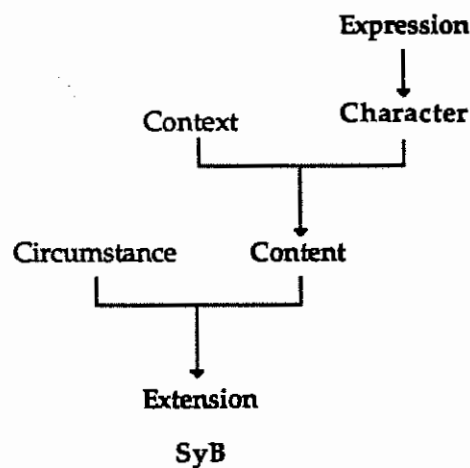


SyA is a framework in which the notion of 'the content of an expression in a context' figures as the basic semantic value. In such a framework, the semantics tells us how extension depends on context by associating each expression-context pair $\langle E, c \rangle$ with a content which is what E expresses in c .

¹The diagrammatic representations I use for SyA and SyB (below) are modelled on those in D. Lewis 1981.

So as far as logic is concerned, the difference between M_4 and SyA is a purely technical one. Converting M_4 into SyA, however, can be more than a technical exercise, as far as our philosophical purposes are concerned. Viewing M_4 as having the structure of SyA enables us to bring out the compatibility of rigidity with indexicality in a more transparent manner. Rigidity, we can now say, is a matter concerning the content assigned to a term, or more accurately, a term-context pair, and the content is a function from possible worlds to extensions. If the function is constant, the content will be a *stable content* (following Kaplan); otherwise it will be an *unstable content*. Rigidity, in terms of SyA, is just stability of content. Indexicality, or context dependence, on the other hand, concerns how contents, be they stable or unstable, are assigned with respect to contexts.

To make things even more transparent, we can take the conversion a step further to SyB.



There are two kinds of semantic values in SyB: high-level intensions and contents. Each expression is assigned a high-level intension, which may be represented as a function from contexts to contents. Or, equivalently, the high-level intension can be regarded as a rule which determines what content an expression has in each context, and this content in turn determines an extension given a possible world as evaluation circumstance. Indexicality, or context dependence, can then be characterized in terms of how these rules determine

the content. An expression is indexical if the rule that determines its content in each context is a variable (not constant) function. Kaplan calls these high-level intensions *characters*. A high-level intension is a *stable character* if it is a constant function; otherwise it is an *unstable character*. He provides the following two definitions concerning characters. (His notation ' $\{\lambda\}_c$ ' for the content of an expression in a context gives a natural notation for the character of an expression, namely ' $\{\lambda\}$ '.)¹

(D9) Where λ is either a term or a formula, the character $\{\lambda\}$ of λ is that function which assigns to each context c , $\{\lambda\}_c$.

(D10) Where λ is either a term or a formula, the character $\{\lambda\}$ is stable iff $\{\lambda\}$ is a constant function (i.e., for all c, c' , $\{\lambda\}_c = \{\lambda\}_{c'}$).

Hence given, for instance, (D2), we have

(D2*) $\{I\}(c) =$ the function f (=the content $\{I\}_c$) such that for every circumstance w , $f(w) = c_a$.

Different contexts, in general, have different agents, so for different contexts c and c^* , the value of $\{I\}_c$ is different from that of $\{I\}_{c^*}$ —despite the fact that both $\{I\}_c$ and $\{I\}_{c^*}$ are constant functions. The indexicality of indexical expressions is reflected by this dependence of content on context. By contrast, there is no analogous dependence in the case of a non-indexical expression—the character of any non-indexical expression is a constant function, which yields the same content for any given context.

[3] Having shed light on the complexity of M_4 by the above conversions, one should be able to see clearly that rigidity is compatible with indexicality. As noted, the natural formalization of the notion of rigidity is in terms of a functional relation between extensions and possible worlds. Viewing M_4 as having the structure of SyB, we can see that contexts and possible worlds enter

¹For sharper formulations see Kaplan 1989a: § XIX Remark 6.

into the determination of extensions at different levels. So it is clear on which level the notion of rigidity should be located: *the question of rigidity concerns contents*. For contents are precisely functions from possible worlds to extensions. In other words, given any term *t* and context *c*, we can ask of *t*, as taken at *c*, whether it is rigid or not; and the answer is 'yes' just in case the content of *t* at *c* is stable. On the other hand, indexicality consists in the determination of contents with respect to contexts. An indexical, or context-dependent, expression is one that is associated (by the semantics) with an unstable character. This is entirely independent of the question whether the content of the expression (at a certain context) as determined by the character is stable or unstable.

The point can also be put this way. 'That there is a gap between meaning and reference in the case of indexical expressions,' as Howard Wettstein rightly points out, 'has been a cornerstone of the new approach'.¹ My use of 'T' and your use of it have different referents, but our uses of the expression have the same lexical meaning. So this lexical meaning does not seem to have, so to speak, enough meaning, as opposed to the meaning of, say, 'The first president of the United States', to determine the reference.² This gap is bridged by the features of the context.³ The difference between levels at which contexts and possible worlds enter into the determination of extension corresponds to this gap between meaning and reference, a gap which does not exist in such a case as 'The first president of the United States'. For given that the evaluation

¹Wettstein 1984: 63. By 'the new approach' Wettstein means the approach of the theorists of direct reference, particularly that of Kaplan.

²See Wettstein 1984: 63-64.

³But exactly how this gap is so bridged is a problem that has divided theorists. For instance, where McGinn holds that the features of the *immediate* context of utterance, such as the spatial-temporal relations between 'the speaker's actions and things around him' (1981:163) are crucial, Wettstein (1984) believes that the reference is determined by 'those very features of communicational interactions that make the reference available' (1984: 45). Also the question of how much importance should be given to the role played by intentions is a further complication, particularly in the case of demonstratives like 'this' and 'that'. See also Kaplan 1989a and 1989b.

circumstance is fixed, the lexical meaning is sufficient for the determination of the reference of the description with respect to that circumstance. But in the case of an indexical expression, this is not sufficient and we need one more index for context. Hence *double indexing*.

2.6. Possible Worlds and Contexts

But one might think that we have not yet proved what we need to prove. Recall that the problem we have been trying to solve is focused on an idea involved in the notion of a 'propositional concept', namely the idea that a possible world may be given the role of being a context (i.e. what we called 'a context-world'). And the problem was that, with such a notion of context, it seems inconsistent to claim that an expression may be context-dependent (i.e. may refer to different objects in different context-worlds) while maintaining, at the same time, that the expression is rigid. Now, at this point, one might challenge us by saying: "You have shown, I agree, that it is not inconsistent to maintain that a context-dependent expression is rigid. But that is not good enough, because the notion of a context, as it is defined in M_4 , makes no reference to the notion of a possible world at all. Therefore, the next thing you need to do is to show that the conclusion you have reached concerning indexicality and rigidity can still be maintained even if you enrich the notion of context by the addition of a possible-worlds coordinate."

Having gone as far as we have towards demonstrating how one may distinguish indexicality and rigidity, this last challenge is by no means difficult to meet. It is true that in the formulation of the above indexical semantic system a context included only three coordinates—an agent, a time and a place. We deliberately did not include in that definition a possible-world coordinate so that possible worlds feature *only* at the level of content in our picture. The point is to make the contrast between the two semantic levels more visible: one level is concerned with evaluation circumstances—possible worlds—while the other

one with something else, i.e. context. But as noted, this is only for the sake of exposition. There is no reason to think that we will no longer be able to make the point that has been made about the compatibility of indexicality and rigidity if we enrich the notion of context by including a possible-world coordinate. The crucial point that has been brought out in the above discussion is that contexts and circumstances enter into the determination of extensions at different semantic levels so that a term can be indexical and at the same time rigid; and this would not be affected by whether we treat possible worlds as one of the contextual features, or, for that matter, as the only contextual feature.

Perhaps it is helpful to look at the temporal case. The tensed sentence 'you were rude yesterday' cannot be said to be true or false without a specification of its truth conditions by appealing to some temporal information found in the context of the sentence. Only given a fixed construal of 'you were rude yesterday' with respect to a context will the following question about temporal rigidity arise: Is the truth (with respect to a certain time of evaluation t) of the sentence, thus construed, determined by whether a certain *single* person *was* rude at a *particular* day? (And if the direct referential view of indexicals is right, then the answer is Yes.) Thus the indexicals 'you' and 'yesterday' in the sentence, as taken with respect to c can be temporally rigid despite the fact that 'you' and 'yesterday' are *contextual* in the sense that they may have different contents (referents, that is) with respect to another context of use. A version of M_4 for this kind of temporal language will be like the one outlined above, with c_t being one of the contextual features, and the evaluation circumstances will be moments of time. So time is both a feature of the context and also an evaluation index, but this is not incompatible with an indexical's being temporally rigid.

Now, is there any reason not to think that the modal case is analogous? I think not.¹ Analogous to the temporal case, the question of (modal) rigidity is

¹Of course, this should not be taken to mean that modal logic and temporal logic are in all respects analogous.

entirely unaffected by the inclusion of a possible-world coordinate in the notion of context, just as the temporal rigidity involved in 'you were rude yesterday' is by no means affected by the fact that the context for the sentence includes a time-coordinate. Let me illustrate this with an example.

Suppose we enrich C of M_4 by defining a context $c \in C$ as a sequence $\langle c_a, c_t, c_p, c_w \rangle$ where $c_w \in W$ (understood as the world of c). We shall also introduce another indexical element, the 'actualized definite description operator', defined thus:¹

(D11) $\text{Ext}_{c_w}(\text{the actual } x \psi) = \text{the unique } i \text{ that satisfies } \psi \text{ with respect to } c_w, \text{ if there is such; and } \uparrow, \text{ otherwise.}$

Note that the relevant possible world in the definiens is c_w —the world in which the context c is located—rather than w ; the relativization to w in the definiendum is therefore redundant. So this definition, in line with the other definitions of indexical elements in M_4 , treats 'the actual $x \psi$ ' rigidly. Now, just like 'you were rude yesterday' in the temporal case, 'the actual $x \psi$ is rude', with respect to the context c , is true with respect to the evaluation circumstance w iff the unique object satisfying ψ with respect to c_w is rude with respect to w (which may not be the same world as c_w). The question of rigidity only arises as soon as 'the actual $x \psi$ ' has been fixed to a certain context of use. As rigidity is located at the level of intension (context), the question how the high-level intension (character) computes the intension of an expression by taking into account the contexts (the question concerning indexicality) should be distinguished from the question whether the outcome of the computation is a constant function (the question concerning rigidity). And this remains so whether or not a context includes a possible world.

¹As we now regarded an evaluation circumstance as simply a possible world; so like (D2)-(D3), this definition involves relativization to ' c_w ' rather than ' cw '. This is of course not a substantial change.

3. Are Names Really Indexical?

What started the discussions in the previous section, it may be recalled, was that our two-dimensional account of the necessary *a posteriori* seems to suggest that names involve indexicality, but this suggestion, together with the fact that our account treats contexts as *worlds*, seems to clash with the rigidity of names.

Drawing on Kaplan's semantics for indexicals, I have argued that this clash is not real. But, ironically, Kaplan's semantics allows one to frame another and indeed more serious problem for our two-dimensional account. Let us see why.

[1] If we extend the use of the apparatus of 'propositional concepts' so that it covers not only utterances of sentences, but also utterances of singular terms, then the propositional concept for the Babylonian astronomer's utterance of 'Hesperus' may be represented by the following matrix:¹

	W ₁	W ₂	W ₃
W ₁	Hes	Hes	Hes
W ₂	XYZ	XYZ	XYZ
W ₃	Mars	Mars	Mars

F

The propositional concept of an indexical, say, my use of 'you' in the 'You are a fool' example in Chapter 3, may be represented as:

¹As it was described in Chapter 3: § 4.4. [1], the first celestial body to appear in the evening sky in W₂ is XYZ, in W₃ is Mars.

	W ₁	W ₂	W ₃
W ₁	O'Leary	O'Leary	O'Leary
W ₂	O'Leary	O'Leary	O'Leary
W ₃	Daniels	Daniels	Daniels

G

Neither propositional concept is constant. By contrast, the following propositional concept determined by any utterance of the description DH ('the first celestial body to appear in the evening'), is constant:

	W ₁	W ₂	W ₃
W ₁	Hes	XYZ	Mars
W ₂	Hes	XYZ	Mars
W ₃	Hes	XYZ	Mars

H

It is precisely because of this similarity between F and G that the two-dimensional account, which employs the apparatus of propositional concepts, is thought to have involved an indexical treatment of names.

[2] Now in terms of the Kaplanian indexical semantics, we can say that the fact that my utterance of 'you' need not refer rigidly to *the same* individual in different context-worlds is a result of the fact that the English expression 'you' has an *unstable* character. According to Kaplan, 'character is set by linguistic conventions and, in turn, determines the content of the expression in every context'¹. The linguistic rule that sets the character of 'you' is what the dictionary attempts to capture by the rule

(Y) 'You' refers to the person addressed.

¹Kaplan 1989a:505.

Kaplan thinks that if we develop our semantic theory—the semantics of direct reference—we would have to expand (Y) into:

- (Y1) 'You' is an indexical, and different utterances of it may have different contents.
- (Y2) 'You' is, in each of its utterances, directly referential.
- (Y3) In each of its utterances, 'you' refers to the audience of the utterance.¹

Given these rules, the character for 'you' is therefore stable.

As we have seen, in addition to character, there is another kind of semantic value—content. As pointed out in Chapter 1, direct reference must be distinguished from rigidity; an expression that does not designate its referent directly may nevertheless designate it rigidly. Thus, in a functional framework like M_4 and Kaplan's LD, a rigid description and a direct referential term have the same kind of content: stable content. Kaplan, holding that indexicals are directly referential, suggests that we should think of the content of an indexical (or, for that matter, of any directly referential term) as the referent itself, rather than as a constant function. Similarly, since the character of a non-indexical expression expresses the same content in all contexts, we may identify, Kaplan suggests, the (stable) character of a non-indexical expression with its content, provided that we are not overly concerned with standardized representations (which certainly have their value, as Kaplan also admits, in model-theoretic investigations).² So in the case of an indexical, the content and the referent collapse; in the case of a non-indexical expression, the content and the character collapse.

¹These rules are modelled on those Kaplan has given for 'I'. See *ibid.*, 520.

²See *ibid.*, 507. It may also be noted that the theory of singular propositions, which Kaplan expounds, is the result of taking seriously this idea of identifying contents with referents. See Chapter 5.

[3] What then should be said about names? Since names are directly referential, their content and their referent collapse into each other. But do they, like indexicals, have an unstable character? The comparison of the above two diagrams suggests that they do. However, there are strong reasons to believe otherwise.

It has been noted that indexicals have unstable characters, rather than stable characters, by virtue of their context-sensitive linguistic meanings. It seems extremely implausible, however, to say the same of names. A name doesn't seem to have a linguistic meaning, let alone a context-sensitive one. Indeed, Kaplan has pointed out that names have a 'fixed' (stable) character. So, their *content* and *character* collapse. Therefore, all three kinds of meanings—character, content and referent—collapse in the case of proper names. Kaplan concludes that names are *not* indexical or context-dependent and do not fit into the semantical scheme he developed for indexicals.¹

Kaplan's scheme is the most fruitful semantics we have for indexicals (and this very fact justified our drawing on his semantics in the previous section). But, now, according to this scheme, names are not indexicals; on the other hand, our two-dimensional account seems to embrace an indexical construal of names. How do we come to terms with these two opposed observations?

In the next section I offer a solution. I shall argue that, contrary to what appears to be the case, one can hold the two-dimensional account without thereby embracing an indexical view of names. The purported indexicality exhibited by 'Hesperus', as revealed by comparing the propositional concepts F and G, is not indexicality but is what I shall call 'frame relativity'.

¹See Kaplan 1989a: 562.

4. Frame Relativity

4.1. Characters of Names: Stable or Unstable?

[1] As a matter of fact, let us pretend, in 1970 I introduced the name 'Pix' by saying, "Let's call the present U.S. president, 'Pix'". Suppose also that this morning I uttered

(1) Pix is a Republican,

and

(2) The present U.S. president has been the head of the CIA.

Was I saying of any single person that he was a Republican and also that he had been a CIA head? Of course not. Given the way 'Pix' was introduced by me twenty years ago, I, uttering (1), was saying of Nixon, rather than the present president,¹ that he was a Republican, whereas my utterance of (2) is true iff George Bush had been a CIA head, because Bush happens to be the present U.S. president.

Thus the designation of 'the present U.S. president', when taken in any context, is sensitive to the orientation of the context, i.e. the time of the context. When I uttered (2) in 1986 (suppose that I did), my utterance was true iff Reagan, not Nixon or Bush, had been the head of CIA. In contrast, 'Pix' is not, in the same sense, context-sensitive. Given that Nixon was the president in 1970, 'Pix' always refers to Nixon, independently of the time, or other orientations of the context of use. So if I had uttered (1) in 1986, I would still have said of Nixon, not Reagan, that he was a Republican.

Now consider:

(3) Pix was once a vice president.

¹I.e. George Bush, who was the U.S. president this morning, and is still the U.S. president as I write.

As uttered by me now, (3) is true iff the following sentence

(3*) Pix is a vice president

is true with respect to some time prior to now. Given that, as a matter of fact, Nixon was a vice president in 1959, (3*) is true at 1959, and thus my utterance of (3) just now expresses a truth. If I utter (3) next year, my utterance will similarly express the same truth. Hence we can say that 'Pix' is (temporally) rigid, but not indexical in the sense in which 'the present U.S. president' is.

So Kaplan seems to be right when he says that a name has a stable character as well as a stable content. Interestingly, however, the above examples also suggest that what a name refers to can nevertheless *depend* on the context. Let me explain.

[2] In Kaplan's semantics, a context involves a possible world. The reason for this is obvious: the occurrence or production of an expression is located both in physical space-time and in *logical space*, so the features of a context should include, among others,¹ a time, a place and a world. Thus if, for any particular actual utterance, any facts had been different, the utterance would have been in a different context. That is to say, for any actual utterance, some of its contexts occur in other possible worlds. Consider now the following possible context, which does not occur in the actual world.

The denotation of the context-sensitive description 'the present U.S. president', as used in a certain context c , depends on who uniquely has the property of being the U.S. president at the time c_t at c_w . Since my introduction of 'Pix' involves 'the present U.S. president', had the dubbing taken place at a different time, say 1980, I might have said of someone else, rather than Nixon, that he was a Republican, when I uttered (1) this morning. I, as a matter of fact, performed the dubbing in 1970, so it could only be in a different world that I

¹There are other features too, for example, agent and audience.

performed the dubbing in 1980. Let W^* be such a world. More specifically, W^* is a world very much like ours: I uttered (1) this morning as I actually did; and the history of the presidency of the U.S. is the same as that in our world. Moreover, in W^* , 'Pix' was introduced by me using exactly the same description (i.e. 'the present U.S. president'). However, in W^* , I introduced 'Pix' in 1980 rather than 1970. If W^* obtained, then my utterance this morning would have been about Ronald Reagan rather than Nixon.

It is arguable that describing a possible utterance of an expression is one and the same thing as describing a possible context in which the expression is produced. Now, it seems that we have just described a possible, though not actual, utterance, or production, of 'Pix'. (Note that it is not merely a possible utterance of a 'word' which has the same spelling or sound as the 'Pix' that I actually used when I uttered (1) and said something about Nixon this morning; it is a possible utterance of a 'name' introduced in a way similar to the name 'Pix' that I used when I actually uttered (1) this morning.) If so, then we may say that we have just described a possible context in which 'Pix' is used to refer to someone other than Nixon. It follows that 'Pix' does not have the same content when used in whatever context.

[3] How would one who holds the Kaplanian 'stable view' concerning the characters of names respond to the observation just made? Perhaps he would say something like the following (let's perform a dubbing and call this Kaplanian 'Mr. Kaplanian').

Mr. Kaplanian: "Well, if W^* had obtained, you would surely have said something of Reagan rather than of Nixon this morning. It's also true that the 'Pix' you produced in W^* is similar to the 'Pix' you have actually used this morning regarding the way in which they were introduced. It would, however, be wrong to say that the 'Pix' you used this morning in W^* is the same name as the 'Pix' that you *actually* used this morning in your utterance of (1). This is

because, *in W**, the 'Pix' you used this morning originated in a totally different dubbing. And different dubbings produce different names. You see, the dubbing you actually performed involved the indexical description 'the present U.S. president', whose reference is sensitive to time of use. So, even though you employed the same 'description' in your dubbing in *W**, you performed a different dubbing because the time involved was different. Perhaps the following consideration will help you see my point. Suppose that, *as a matter of fact*, in addition to your introduction of 'Pix' in 1970 (in our world), someone, perhaps being unaware of that introduction, also introduced a name in 1980 by saying, coincidentally enough, "Let's call the present U.S. president 'Pix'". For clarity, let us refer to this second name as 'Pix₂'. It is clear that 'Pix' and 'Pix₂' are *different* names, although they have exactly the same spelling and sound, and were introduced by means of the same description. This would remain so even if that someone else were you. In that case, in your idiolect, 'Pix' would be an *ambiguous* expression; or, put in another way, 'Pix' and 'Pix₂' would belong to two different languages that you would speak. These two ways of describing the situation have no real differences because ambiguity can be regarded as the effect of two languages at work at the same time. At any rate, the important point is that we have here two *different* names, created by two different dubbings. The difference between the name 'Pix' you have actually introduced and the name you would have introduced in *W** is similar to the difference between 'Pix' and 'Pix₂'. Therefore you have not described a possible utterance of the name 'Pix', nor a possible context in which 'Pix' may have been used. Rather, the possible utterance you have described is an utterance of a different name which happens to have the same physical characteristics as 'Pix'."

Response. It may seem fair enough to say the dubbing performed in *W** is different from the actual one. But what about the following consideration? As we have seen, the denotation of 'the present U.S. president', when taken in a context, depends on who uniquely satisfies the description at the time and in the

world of the context. So had it been the case that Lyndon Johnson was re-elected in 1969 and was still the U.S. president in 1970, the dubbing I performed in 1970 would have had the result of dubbing Johnson 'Pix', and my utterance of (1) this morning would have been false.¹ To see this, consider a world V, which differs from the actual world in only one regard²: namely, that in V Johnson was the U.S. president in 1970. If V were actual, then, when I uttered (1) this morning, I would have said something about Johnson, rather than Nixon; as I would have introduced 'Pix' as a name referring to Johnson. Now can we say that we have just described a possible utterance of 'Pix' whose referent is different from my utterance of 'Pix' this morning in the actual world?

Mr. Kaplanian: "I can't see how this case is any better than the W*-case. Again, the utterance of 'Pix' that you would have produced this morning, *if V were actual*, could not be an utterance of the name 'Pix' *as you have actually introduced it*. It is true that the utterance 'Pix' you would have produced this morning in V has a causal history very similar to that of the utterance of 'Pix' you actually produced this morning. But still, if V were actual, you would have used a different name because the name you would have uttered would have originated from a dubbing different from the actual dubbing. In the actual dubbing, it was Nixon that you dubbed 'Pix'. But if V obtained, the individual dubbed would have been a different individual. That means you would have performed a different dubbing."

Response. Why must we say that I would have performed a different dubbing in V? I can't see why we cannot say something like this. The dubbing that I performed in V is the same dubbing as the actual dubbing; and the fact that it ended up introducing a different object is because dubbings are context-dependent, in the following way. What particular object I dubbed depends on the states of affairs that obtain in the world in which the dubbing took place. But

¹Johnson was a Democrat. Nixon is a Republican.

²Plus, one may add, what is entailed by the difference in this regard.

the world in which my dubbing took place is a feature of the context in which my description 'the present U.S. president' was used. A context, as Kaplan says, has a world-feature. What the V-example has shown is how my dubbing is sensitive to the world-feature of the context of the dubbing. I performed the *same* dubbing in a different context which, compared with the dubbing in the *actual* context-of-dubbing, has a different world-feature. Since my dubbing is sensitive to this feature, the object dubbed was different. But if a dubbing is context-dependent, then so is the name it introduced. Therefore the name 'Pix' I use *in V* is the *same* name as I use in the actual world, although they have different referents owing to context dependence. So names do not have stable character.

[4] In fact, Almog has argued, on similar grounds, for just this conclusion: that names have unstable characters and hence are *bona fide* indexicals. The observation that dubbings are 'context-dependent' is, I think, an important one. It is misguided, however, to think that it leads to the conclusion that names are indexicals. Quite the contrary. It points to some deeper differences between names and indexicals. But before going into that, let us take a brief look at Almog's argument.

Almog has argued that different utterances of the *same* name, say, 'Aristotle', may originate from dubbings in which different objects are involved: an utterance of 'Aristotle', as used by Jack in context *c*, and an utterance of 'Aristotle', as used by me in context *c**, may be different tokens of the *same* name, even though 'Aristotle' refers to Onassis when used by Jack in *c*, and refers to the famous philosopher when used by me in *c**.

More specifically, Almog treats names as complicated 'backward-looking mechanisms', in the following sense:

...when we face an occurrence of a name, however deeply embedded in a large sentence, it will refer back through the casual chain to the original context-of-dubbing. There we must check the current state

of facts (the actual world of that context) and see which object has got the name.¹

In other words, for any occurrence of a name, say, 'Aristotle' in any given context C, it will refer to the object that was given the name 'Aristotle' in some 'context-of-dubbing' C_d, which is linked with C by a causal chain. Now suppose that the object that has got the name in C_d is Onassis. When 'Aristotle' is used in a different context, say C*, the relevant 'context-of-dubbing' C*_d might well be one in which Aristotle, the philosopher, is the object that has got the name. So, what 'Aristotle' refers to depends on the context—in C, it refers to Onassis; in C*, the famous philosopher. Thus, names have variable characters and are thereby indexicals, though compared with that of other indexicals, such as 'I', or 'you', the way the reference of names depends on context is a lot more complicated. On this account, that my use of 'Aristotle' and Jack's use of 'Aristotle' refer to different objects is not a phenomenon of lexical ambiguity, but rather of indexicality.

This account, however, is not well-motivated. Almog treats names as indexicals for this reason:

A learnable language cannot have an infinite number of semantic primitives, thus lexical ambiguity is a *finite* notion. However, there is no limit on the number of objects to be referred to by a name; and

With certain names running with a very high frequency (Jones, Smith) or else, first names which really exemplify an almost uncontrollable proliferation, only the context-of-use can make clear what is said and thus clear the way to ask of IT, whether IT could have been so-and-so.²

Therefore, in order to account for the learnability of our languages, names must be treated as indexicals.

¹Almog 1981: 367f.

²*Ibid*: 367.

This is a very shaky argument. Almog is right to say that we cannot allow infinitely many semantic primitives in the natural language of a finite user. I agree that a name is a name of each and every object which we have called by that name. I also agree that there is no limit on the number of such objects, in the sense that we can call *any* object 'Aristotle', and that calling some object 'Aristotle' does not prevent us from calling another object by the same name. It does not follow, however, that a name can have an infinite number of referents (even assuming that there are infinitely many things) *and still* be a semantic primitive of any learnable language. I cannot imagine that there could be a learnable language containing names which have infinitely, or indefinitely, many referents in the sense in which one might sometimes say an indexical, say 'this', has. Furthermore, it is true that, "with certain names running with a very high frequency", we need the context-of-use to make clear what is said. For example, the context usually provides contextual cues for us to work out to whom the speaker intends his use of 'John' to refer. But isn't this kind of reliance on context, for what a speaker means, also very common in the case of many typically non-indexical expressions, for example, 'bank'? Lastly, the way one might work out the referent of a name by relying on the context does not seem to be part of the semantic rules of a name, in the sense in which the way one might determine what the referent of a use of 'T' by relying on the context is.

Most importantly, however, I think Almog's treatment obscures the difference between two senses of 'context-sensitive'. That is, the sense in which 'Pix', 'Hesperus', etc. are context-sensitive and the sense in which such typical indexicals as 'I' and 'you' are context-sensitive. The next three subsections (§4.2 - §4.4) sort out this important difference.

4.2. *Points of View — Frames of Reference*

[1] As the reader may have noticed, the kind of indexicality suggested by 'Pix' and 'Hesperus' does not seem directly incompatible with Kaplan's doctrine that

names have stable characters. Our comparison between 'Pix' and 'the present U.S. president' at the beginning of this section demonstrated this. The kind of 'context dependence' exhibited by 'Pix' only suggests itself when we look at possible particular uses of 'Pix' from 'different points of view': from the point of view of *the world V* (see the second response to Mr. Kaplanian) 'Pix' has a different reference from that which it has looking from the point of view of the actual world. We can even say that from each of these two different points of view, 'Pix' has a *different* but stable character—but more on this later.

The following example, by Harry Deutsch, offers a nice illustration of the point, despite the fact it is a bit far-fetched when compared with our 'Pix' example. Deutsch writes:

Let's imagine, for example, that time travel is logically possible.[†] So suppose I return to 1970 and assert that Max Deutsch is alive and well in 1987. My act of assertion *takes place in the past*, but its frame of reference is the present. Charitable listeners would regard my statement as a complex prediction about the future; they would have some difficulty adopting to [*sic*] my point of view. These difficulties would be, however, epistemological, not logical. I could very well explain to anyone willing to listen that from the point of view of 1987, my assertion—which takes place in 1970—is straightforwardly true in 1970; although from the point of view of 1970, it is false or lacking in truth-value in 1970. I might even be understood. Yet suppose that upon returning to the past I say "*yesterday* the Dow Jones Industrials declined 508 points." My listeners would rightly take me to be suggesting that the day prior to the day on which my assertion takes place (that is, some time in 1970), the Dow stood at 250 or thereabouts. (In March of 1970 the Dow was 760 or so.) The point is that the referent of 'yesterday' depends on the actual orientation of the context of use (in particular, it depends on the actual time at which the utterance is produced) in a way that the referent of the name 'Max Deutsch' does not. In general, names *are* "context-dependent" in the sense that what they refer to depends on the frame

[†] [Deutsch's note] So David Lewis has argued in "The Paradoxes of Time Travel," *American Philosophical Quarterly* 13 (1976): 145-52.

of reference invoked by the context. Yet, generally, what a name refers to will *not* depend *directly* on the orientation of the context. Of course, sometimes it will. Most names are shared by many things. Hence, to tell which of several things having the same name is under discussion, we must try to determine the intentions of *the speaker*—and *the speaker* is one of the elements of the context's orientation.¹

It is also shown, in another (this time more realistic) example by Deutsch, that failure to take the point of view into account has rather serious consequences.

The following sentence:

(4) Muhammad Ali knocked out Sonny Liston

is true now. According to standard tense-logic, (4) is true now iff at some time before now the following sentence is true

(5) Muhammad Ali knocks out Sonny Liston.

But if one ignores the point of view, it is difficult to see how (5) can be true at *any* time. There is surely no time at which (5) can qualify as an accurate newspaper headline.² The difficulty is solved by bringing in 'points of view': from the *present* point of view, 'Muhammad Ali' in (5) rigidly refers to Muhammad Ali, and so (5) expresses a proposition that is true at a time, *t*, iff Muhammad Ali knocks out Sonny Liston at *t*. Since this proposition is true in 1965, (4) turns out to be true now.

This notion of 'point-of-view'-relativity, which cuts deeply into the semantics of names, is all the more important in those cases which involve reference-fixing by means of indexical expressions, such as the case of 'Pix'. It is true that my use of 'Pix' this morning and my use of 'Pix' right now both refer to Nixon, and thus exhibit a stability of character. But this stability is a relative

¹Deutsch 1989: 176.

²Deutsch notes: 'Cassius Clay acquired the name "Muhammad Ali" when he became a Black Muslim in 1963. As late as the second Clay-Cooper fight in 1966 he was known to the public as 'Cassius Clay'. Since this is a little-known fact, it doesn't affect the force of the example, much less its point.' (*Ibid.*, 177.)

matter. The definition involved in the dubbing of 'Pix'—'the present U.S. president'—is itself context sensitive. So what stable character 'Pix' has is relative to the world of 1970. Suppose $W@$ is our world, V is the same as it was described above, and U is a world in which, when I introduced 'Pix', Ford had already succeeded Nixon. The content of my utterance of 'Pix' this morning in these three worlds may be represented by the matrix P :

	$W@$	V	U
$W@$	Nixon	Nixon	Nixon
V	Johnson	Johnson	Johnson
U	Ford	Ford	Ford

P

The worlds on the vertical axis may be regarded as various possible states of the world at the time I introduced 'Pix'. Clearly, what 'Pix' is a name of depends on which of these possible states obtains. Thus, what matrix P represents is also how the content of an utterance of 'Pix' depends on the state of the world when the dubbing took place. For instance, if U obtained, then the state of the world when the dubbing took place would be different from the actual state of the world when I performed the dubbing.

[2] Owing to the relativity involved in dubbing, the character of 'Pix' is stable, but only so in an intriguing and subtle way. If I use 'Pix' tomorrow night, I shall refer to 'Nixon'; if I use it next Sunday, it will still refer to Nixon, regardless of who the U.S. president will be at these two future times. But a context might occur in some world other than the actual one. There are contexts which occur in the world V . Now consider my using, *in V*, 'Pix' tomorrow night—that is, consider my using 'Pix' in a context, the time of which is tomorrow night, and the world of which is V (we may ignore the place). Call this context ' C_1 '. Given our description of V above, it is obvious that in C_1 , my utterance of 'Pix' refers to Johnson, the person who would have bestowed the

name 'Pix' by my dubbing if *V* obtained. Consider also my using, *in V*, 'Pix' next Sunday (let's call this context of use C_2). Like my use of 'Pix' in C_1 , my use of 'Pix' in C_2 also refers to Johnson.

According to Kaplan, the fact that 'Pix' has the same referent in C_1 and C_2 , regardless of who the president is at the time of context, is a matter of stability of character. But at the same time, from the Kaplanian point of view, the name 'Pix', as used in C_1 and C_2 , invokes dubbings different from the one by way of which the name 'Pix', as I have actually introduced it, was introduced. Therefore, Kaplan would have to say that the name used in C_1 (or C_2) is different from the name which I have actually introduced; or to put it another way, he will have to say that neither C_1 nor C_2 is a possible context for the name 'Pix' that I have actually introduced. But is it entirely wrong to say that C_1 and C_2 are possible contexts for the name I actually introduced?

I agree with Kaplan that 'Pix', in an interesting sense, has a stable character and is thus different from a typical indexical like 'I'. I also agree that there is a difference between ambiguity (e.g. 'Pix' and 'Pix₂') and indexicality (or context dependence). But we must not lose sight of the fact that a name's having a stable character is a relative matter. Only relative to the actual world, in which Nixon happened to be the president in 1970, does 'Pix' have the particular stable character that Kaplan would think it has. Yet, relative to another world, for example, *V*, 'Pix' has a different (stable) character (i.e. a constant function from worlds to the individual, Johnson).

In fact, this kind of relativity to 'points of view' is exhibited even in the semantics of indexicals, but only so in a subtly reversed manner. 'I' is a typical indexical expression. It denotes the speaker of the context in which it is used. Thus the character of 'I' is unstable. Now consider *my use of 'I'*, and *your use of it*. My use of 'I' always designates me in all contexts, and your use always designates you in all contexts. There seems to be no context in which my use of 'I' would designate someone other than myself. Can we think of a context in

which my use of 'T' would fail to designate me? That is, does *my use* of 'T' (or *your use* of 'T'), have an unstable character too, given that 'T' has an unstable character? No. When you use 'T' in a certain context, the expression produced in that context is your use of 'T', not my use of it. So that context is not relevant. On the other hand, all contexts that are relevant are ones which involve *my use* of 'T'. But in these contexts, the expression obviously refers to myself.

Hence it can be said that my use of 'T' and your use of 'T' have *different*, but *stable*, characters, as opposed to the unstable character our respective uses share.¹ Failure to see that 'Pix's having a stable character is a relative matter is like losing sight of the fact that my use of 'T', or your use of 'T', has a stable character only in virtue of the unstable character our respective uses share, i.e. the unstable character of 'T'.²

To borrow a piece of terminology from Deutsch,³ I shall call the kind of relativity involved in the character of a name *frame (of reference) relativity*. We can think of a frame of reference as a possible world, or a state of the world at a certain time. So we can say that relative to the frame of reference V, 'Pix' has a stable character, i.e. the constant function from contexts to Johnson,⁴ and relative to another frame, say the actual world, it has a different stable character, i.e. the constant function from contexts to Nixon. From the point of view of frame relativity, we can say that the Kaplanian focuses too much on *the stability* of the character of a name—in other words, on that which is relative to frames of reference—and too little on the relativity itself, whilst Almog's 'indexical view' of names mistakes what in fact is frame relativity for indexicality, and

¹Here 'my uses' and 'your uses' of 'T' need not be understood as particular tokenings of 'T' by me or by you. We focus here on two expression types: 'my use of "T"' is that expression type all tokens of which are particular uses of 'T' by me; 'your use of "T"' is that expression type all tokens of which are particular uses of 'T' by you.

²See also Deutsch 1989: 185f.

³*Ibid.*

⁴The content and the referent of a rigid term, as Kaplan says, collapse, so the character of 'Pix', relative to V, can be taken as a function from contexts to the referent, Johnson.

hence fails to acknowledge the non-relative, stable aspect of the semantics of names.

4.3. *Frame Relativity and Indexicality*

[1] Frame relativity, as exhibited by 'Pix', is not limited to names introduced by a dubbing using *descriptions*. In Kripke's terminology, the description used in a dubbing *fixes the reference* of the name introduced. But descriptions are not the only device for reference-fixing. One may use, for example, an indexical such as 'this', as a device for reference-fixing. However, whatever devices the dubber may use, it remains true that the surrounding setting in which the dubber finds himself plays a crucial role in determining what will be fixed as the reference. Consider for instance a dubbing in which Jack says 'Let's call this, "Blah"' and accompanies his use of 'this' with a demonstration. What object will be dubbed 'Blah', if there is one, depends on how the demonstration is set. A demonstration which in fact demonstrates a certain individual might have demonstrated a different individual.¹ Thus, what will be dubbed by Jack depends on the extralinguistic facts surrounding him. If it had been the case that what was demonstrated was Jack's copy of *Word and Object*, then 'Blah' would have been a name for that book.

One might think that frame relativity is just some kind of implicit indexicality; as the examples of 'Pix' and 'Blah' involve indexicals—'present' and 'this'. But to think so is to miss the point that has been brought out in the foregoing discussion. It is true that being frame-relative, 'Pix' is, *in a wide sense*, context-dependent, or, indexical; but frame relativity is different from *indexicality*, as construed in the narrow sense, in which 'I' and 'you' are typically indexical. In fact, frame relativity is so different from indexicality (in the narrow

¹Here I assume that it is not an essential property of a given demonstration that it demonstrate a particular individual. In other words, I assume a demonstration *could have* demonstrated an individual other than the individual actually demonstrated. See Kaplan 1989a: 524-529.

sense) that one can have examples of frame relativity which do not involve any use of indexical expressions. My example of 'Pix' involves the indexical-description 'the *present* U.S. president', but that is merely a deliberate design to make more visible the contrast between indexicals and names. The frame relativity of 'Pix' does not really rely on the use of the indexical 'present'. A closer inspection of my earlier examples will make this clear. My dubbing in the actual world, V, and U are all performed at the *same* time. So the relativity of 'Pix' cannot have anything to do with the use of the indexical 'present' in the reference-fixing description.

This point is an important one. Let me say a few more words about it, even at the risk of labouring what is already obvious. The point can be seen most clearly by revising the story about the introduction of 'Pix' so that the description involved in the dubbing of 'Pix' is not 'the present U.S. president' but rather 'the U.S. president'. Suppose that, as a matter of fact, what I said at the dubbing is 'Let's call the president of the U.S., "Pix*"'. (The asterisk is added in order to avoid mixing up different versions of the story.) This revision will not affect the points we have already made about 'Pix' regarding its frame relativity. For instance, in V my use of 'Pix*' this morning referred to Johnson, as in the original version of the story.¹ Also, as in the 'Pix'-case, 'Pix*' has, relative to V, a stable character (the constant function from contexts to Johnson) *different* from the one it has relative to the actual world (the constant function from contexts to Nixon).

We can even revise the story further without affecting the frame relativity of the name. Suppose the reference-fixing description involved in the introduction of 'Pix' is what one might call an 'eternal description' so that what I said in the dubbing is 'Let's call the U.S. president in 1970, "Pix***"'. Again,

¹Of course, we need to make some corresponding changes regarding the description of the world V: that is, V is a world in which I perform a dubbing in 1970 using the description 'the U.S. president'—just like the dubbing I actually perform according to the *revised* version of the story.

although the reference-fixing description contains no indexical elements at all, there is no reason why what we have said so far about 'Pix' and 'Pix**' should be affected by this revision. Just as 'Pix' and 'Pix*' in the earlier versions, 'Pix**', has, relative to the actual world, a stable character, namely the constant function taking contexts to Nixon; but relative to V (allowing corresponding changes in the description of this world), it has a different, but still stable, character.

I said earlier that frame relativity is a kind of 'context dependence', in some wide sense. But my last observation suggests that this kind of dependence has nothing to do with the use of any 'indexical expression'. What then is the source of the 'context dependence' that underlies frame relativity?

As one might have already noticed at this point, the frame relativity of 'Pix**' has its source in the contingency of someone being the U.S. president in 1970 and the fact that 'Pix**' is introduced to be whoever happens to be the U.S. president in 1970 in the actual world. But one might then wonder whether in saying that 'frame relativity' is a kind of context dependence, we are confusing the notions of *context dependence* and *contingency*.

I believe not. To see why, it is important to recognize the dual role played by the notion of the actual world, a point we touched upon in the previous chapter. We may now take that point up again by way of the following observation.

[2] The notion of 'actual world' can be obtained in two ways in formal semantics. The first way is, as Kaplan says, 'by starting with a full-blown indexical language, deriving the notion of context of use from its role in the semantics of indexicals, and then recognizing that truth, absolute truth in a model, is assessed at the world-of-the-context, i.e., the actual world'.¹ The intuitive idea behind this is that the world in which a context occurs is the very world which is *actual* from the point of view of the context in question. I am

¹Kaplan 1989b: 595. See also §2.4 above.

using the word 'T' now; this use of 'T' is located in a certain world, namely, the world of the context of that use. This echoes our earlier 'good point' construal of 'actual world'. That is why the definition of 'validity' as 'truth-no-matter-what-the-circumstances-were-in-which-the-sentence-was-used' is the generalization of the classical definition of validity in modal semantics to indexical semantics.¹

On the other hand, for an indexical-free modal language, (absolute) truth (in a model) is, as noted earlier, truth in the *designated* world (of a model). Intuitively, the designated world is the actual world. This can be shown by the usual interpretation of 'the actually true' operator, if it is to be added to the language: relative to a model, *s* is *actually true* with respect to a world *w* iff *s* is true with respect to the *designated world*. So the second way of obtaining the notion of 'actual world' is to start with an indexical-free language and recognize that absolute truth in a model is assessed at the designated world. This notion of 'actual world' seems very different from the one obtained by the first way. But this is not true. From the double-indexing point of view, the designated world, at which truth is assessed, is all that remains of context when all contextual features have been stripped away. The designated world may be regarded as the residue of the notion of context. The notion of 'actual world' obtained in the second way is the world-of-context in the limiting sense.

Hence the notion of the actual world has two faces, or plays a dual role regardless of the way in which it is obtained: it is *the world of context of use* and also the *circumstance* at which truth is assessed. This fact about the notion of 'the actual world' is most visible in dubbings. Kaplan points out that dubbing is 'a form of definition in which context may play an essential role.'² This is certainly right. But context's coming into play in dubbings need not be, and in general is not, a result of the use of indexicals in dubbings. Context comes into play in dubbings by virtue of the fact that what would be given the name

¹*Ibid.*, 595.

²Kaplan 1989a: 551.

depends on which object has certain properties (as specified by the relevant description) *in the actual world*, which is *both* the world-of-context of the context in which the dubbing (and hence also the relevant description) is produced, and the circumstance at which the referent of the description is assessed. Who got the name of 'Pix**' depends on who happens to be the U.S. president in 1970, in other words, on who in the world-of-the-context (of the dubbing) is the U.S. president in 1970. So although the description used in the dubbing of 'Pix**' does *not* contain any *indexicals* and what it denotes is simply a matter of contingency, the dubbing is, nevertheless, in a wide sense 'context-dependent', or in our terminology 'frame relative'.

So our view about the frame relativity does not confuse 'context dependence' and 'contingency'.

4.4. *Frame of Reference and Propositional Concepts*

[1] The kind of context dependence exhibited by 'Hesperus' and 'Phosphorus' in the two-dimensional account is frame relativity. For there is no significant difference between the Babylonian's dubbings of Venus and my dubbing of 'Pix*' or 'Pix**'. Conversely, the frame relativity of 'Pix**' can be represented by the Stalnakerian apparatus of propositional concepts, as shown by the matrix P.¹ All we need to do is to think of the context-worlds, in these cases, as frames of reference, rather than 'contexts' in the Kaplanian sense.

Recall that what determines a propositional concept is not a *type* of expression but a *particular utterance token*, say, my utterance of 'Pix**' this morning. We have pointed out that the propositional concept account is not concerned with utterances as merely physical or syntactic objects.² So what the propositional concept for 'Pix**' is supposed to represent is not the content that

¹Given, of course, corresponding changes are made regarding the descriptions of context-worlds involved.

²See Chapter 3: § 3.

the syntactic object 'Pix**' has in various possible worlds. Rather it is supposed to represent the content that my utterance of 'Pix**' has in various possible worlds compatible with the fact that it is introduced by me in 1970 with the description 'the U.S. president'. Another way to put the point is this. The utterance 'Pix**', to which we assigned the matrix *P*, is *context-bound* in the sense that the utterance "carries" with it some relevant contextual features fixed by the facts surrounding the production of the utterance. Indeed, only with *utterance* understood as context-bound in this sense can my utterance of 'Pix**' determine a propositional concept. For with an utterance being 'context-bound' in the relevant sense, no additional elements other than a context-world will be needed for determining the content of the utterance with respect to the context-world.

So *V* and *U* represent two possible frames of reference for my use of 'Pix**': in both worlds, my utterance is a token of a name that has its reference fixed in the same way, except for the fact that the relevant extralinguistic facts surrounding the dubbing that determined the denotation of the reference-fixing description used—i.e. the relevant facts concerning the U.S. presidency—are different. That is, each world is an alternative world-of-context for my particular utterance of 'Pix**' this morning. From the point of view of each world, my utterance has a stable character.

Furthermore, if the character of a name is a relative matter, then the rigidity is also a relative matter. It is true that we have taken pains to show that rigidity is a matter of content, rather than character. But, as noted, when character is stable, character and content collapse. So dubbings, the characters of names, and rigidity of names are all (frame-) relative matters. The matrices *P* and *F* can also be seen as representations of this relativity of the rigidity of 'Pix**' and 'Hesperus'.

[2] An utterance of an indexical expression, say my utterance of 'You are a fool' in our example in Chapter 3, also determines variable propositional concepts. Are we saying that 'you' is also frame-relative? Of course not. The propositional concept offers a way of representing frame relativity. But we are not saying that any utterance determining a variable propositional concept is frame-relative. The context dependence exhibited by the matrix B (in Chapter 3) reflects context dependence in the narrow sense, not frame relativity. The variability of matrix B is explainable by the fact that 'you' is an indexical. What B is supposed to represent, as made clear by the way in which we set up the example, is what my utterance of 'You are a fool' expresses in various possible worlds. As noted above, this utterance should be understood as carrying with it the contextual feature that it is used by me as a token of an English sentence-type—the language used is also a contextual feature, though usually taken as 'understood'. Other features it carries include, for instance, the speaker's being me. Indeed, as our example has made clear, it carries all relevant contextual features¹ except 'the audience'. That is, the *audience* of *my* utterance is to be supplied by the context-world in which the utterance occurs, depending on who in that world I speak to. So, as set in a context-world in which *the audience* is Daniels (as in *W*₃) and given the linguistic rule governing the use of (the English expression) 'you'², the referent of 'you' in my utterance would be Daniels. Hence the variability of the propositional concept of my utterance of 'You are a fool' reflects the indexicality of 'you', rather than suggesting frame relativity.

¹However, except perhaps for the 'language', and the 'speaker', almost all these features (e.g. the time of the context), are suppressed in my presentation of the example. (In fact, I did not even say that the language of my utterance is English. This itself is an example of how the 'language feature' in a context of use is usually 'understood'.)

²Or, equivalently, 'and given the character of the (English expression) "you"'. One may recall that the character of 'you', as noted, is set by the rules (Y1)-(Y3). See § 3 above.

Thus, as far as indexicals are concerned, characters are what an indexical semantic theory assigns to expression types as their meanings or semantic values, whereas propositional concepts are semantic objects associated with particular tokens of an expression type. Moreover, the propositional concept of an utterance of an indexical is determined by the *character* of the relevant indexical type, together with the *facts* surrounding the utterance as it is used in the context-worlds. This also applies to descriptions such as DH. But for any utterance of a description involving no indexical elements, the propositional concept determined will be constant because the relevant character is stable. (See, e.g., the matrix H).

The case of a name is a lot subtler. We can say that, relative to a frame of reference, a name has a stable character invoked by the relevant dubbing. This character, however, as Deutsch puts it, is 'internal and immanent' to the frame of reference.¹ 'Hesperus' has the stable character that it actually has, i.e. the function taking all contexts to Venus, only if we consider only those contexts occurring in the actual world, or in other worlds, in which the same planet was named by the dubbing. This is also reflected by the fact that a Kaplanian would *not* regard any context occurring in a world in which the dubbing description DH picks out some object other than Venus as *a context of 'Hesperus'*. (Or, as another example, Mr. Kaplanian's denial of my utterance of 'Pix**' in world V as a possible utterance of the name 'Pix**' as I have actually introduced it.) If we think of the context-world, in the case of a name, as the frame of reference, the propositional concept represents the relativity of frame relativity. So in this case, unlike the case of indexicals, or descriptions, we cannot say that the character of 'Hesperus', together with the facts surrounding a particular utterance of 'Hesperus' as it is used in a particular context-world, determines the propositional concept of that utterance. Perhaps we can say that it is determined

¹Deutsch 1989: 186.

by the utterance's being a token of a name which was introduced in a dubbing using a particular reference-fixing description.

In sum, dubbings are, in an interesting sense, 'context-dependent' and, thus, so are names. Yet the 'context dependence' exhibited by a name, as revealed by, for example, the propositional concept *F*, is not indexicality, but frame relativity. In a word, even on the two-dimensional account, names are names, not indexicals. As the oft-quoted Bishop Butler has it: 'Everything is what it is, and not another thing'.

I conclude this chapter with a very brief review. We started with the observation that, espousing the two-dimensional account that we put forward in Chapter 3, we seem to have committed ourselves to an indexical treatment of names, because on that account the reference of 'Hesperus' varies across context-worlds. This prompted us to give an explanation of how it is possible for an expression to be both indexical and rigid. An explanation was given in Section 2 by exploiting recent investigation into the logic of indexicals. But our explanation introduced a more serious problem, namely, the problem of how to square the purported indexicality of 'Hesperus' with Kaplan's contention that names are not indexical because they have a stable character. The final result of our analysis is that the purported indexicality of 'Hesperus', as suggested by the variable propositional concept that it determines, is in fact not indexicality, in the sense in which 'I' and 'you' are indexical, but what we have called 'frame relativity'. Thus our employment of the apparatus of 'propositional concepts' in our account would neither bring us into conflict with the most advanced logic of indexicals nor with Kaplan's view about the characters of names.

Chapter 5

Singular Propositions

'It is easy nowadays to get caught up in direct-reference mania,' Salmon wrote in 1986. It is still true, only nowadays one is unlikely to get caught up in the mania without also getting caught up in its heir—singular-proposition mania.

A staunch champion of singular propositions was Russell, who advanced his view in his early work on truth and meaning at the beginning of this century. But the theory did not seem to command as much attention as the subsequent Frege-Church-Carnap theory of general propositions. Interestingly, the very notion of a proposition plays no role in Kripke's classical exposition of the tenets of the theory of direct reference in 'Naming and Necessity'.¹ Neither can one find much 'proposition talk' in other seminal works of the theory such as those by Donnellan and Putnam.² This is also true of Salmon's reconstruction and elaboration of the theory in *Reference and Essence*. Kaplan is exceptional in this respect. In his paper 'Demonstratives', he explains 'direct reference' in terms of 'singular propositions', arguing that a formula containing a free variable—the paradigm of directly referential terms, according to

¹Except in the preface (1980) of the book version of 'Naming and Necessity', where he makes use of the notion briefly.

²For example Donnellan 1966, 1972 and Putnam 1973, 1975.

Kaplan—expresses a singular proposition (with respect to an assignment of value to the variable). In 'How to Russell a Frege-Church' he also links, I think rightly, 'singular propositions' to 'transworld identity', a central metaphysical problem underlying semantics of quantified modal logics and Kripke's discussion of the modal status of proper names in 'Naming and Necessity'.¹ Owing largely to the influence of Kaplan's works, the topic of 'singular propositions' has become one of the most widely discussed in the latest investigations into the theory of singular reference. Many proponents of the theory, such as John Perry and Scott Soames, embrace the theory of singular propositions and consider it the most congenial fine-grained account of propositions for the theory of direct reference.

I agree that the theory of singular propositions is *the* account of propositions for the theory of direct reference. Indeed, nowadays it is unlikely that one who allows 'proposition-talk' would espouse the theory of direct reference without subscribing to the doctrine that a sentence containing a directly referential term expresses a singular proposition. However, while the close link between 'singular proposition' and 'direct reference' has been widely accepted, exactly how the link should be conceived has, as far as I know, not been made clear enough. The first section of this chapter aims to shed some light on this. The observations made in that section will also provide a useful foil for the discussions in the remainder of the chapter, where I shall examine Salmon's attempt to refute Kripke's Thesis, and argue that the attempt is unsuccessful.

¹See Kaplan 1975.

1. Singular Propositions, General Propositions, and Direct Reference

1.1. Two Characterizations of 'Direct Reference'

[1] What is a singular proposition? Consider the simple sentence 'John is wise'. This is a sentence about John, and is true just in case John has the property of being wise. Now let us think of the proposition (or content) expressed by this sentence as having two components. Corresponding to the predicate we have the property of being wise. And corresponding to John we have, on the one hand, the *individual*, John, himself, *or*, on the other hand, some *conceptual or intensional entity representing the individual* (that is, what Frege called 'mode of representation', or what Russell called 'denoting concept'). Let us take the proposition to be the ordered pair of these two components. We have, then, two different propositions. The first one is $\langle \text{John}, P \rangle$; and the second is $\langle M, P \rangle$, where P is the attribute of being wise and M is a conceptual representation of John. Kaplan calls a proposition of the former kind a *singular proposition*; and a proposition of the latter kind a *general proposition*.¹ In other words, a singular proposition is one 'in which individuals whom the proposition is about "occur as constituents" (to use Bertrand Russell's phrase)'.² By contrast, a general proposition is a 'composite purely intensional entity made up solely of further intensional entities such as attributes and concepts, employing purely conceptual representations of the individuals whom the proposition is about'.³

¹Kaplan 1978: 387.

²Salmon 1986: 1.

³*Ibid.*, 1.

[2] The notion of a singular proposition has become one of the most central notions in the theory of direct reference. As I mentioned in Chapter 1, Kaplan has offered us two characterizations of direct reference:

By [semantics of direct reference] I mean theories of meaning according to which certain singular terms refer directly without the mediation of a Fregean *Sinn* as meaning. If there are such terms, then the proposition expressed by a sentence containing such a term would involve individuals directly rather than by way of the "individual concepts" or "manners of presentation"... Let us call such propositions....*singular propositions*.¹

It is clear that Kaplan thinks that any singular term that is directly referential in the negative sense, viz. that

(NS) refers without the mediation of a Fregean sense,

is *also* a term such that

(SP) the proposition expressed by a sentence containing it is a singular proposition.

While one might think that, since (NS) and (SP) are distinct, some argument needs to be given to show that there cannot be any term which satisfies (NS) without satisfying (SP); Kaplan, in his latest remark on the topic, simply makes the same claim again:

Directly referential expressions are said to refer directly without the mediation of a Fregean *Sinn*. What does this mean? There are two things it might mean. It means that the relation between the linguistic expression and the referent is not mediated by the *corresponding propositional component*, the content or what-is-said. This would be directly contrary to Frege, and it *is* what I meant. But it also might mean that *nothing* mediates the relation between the linguistic expression and the individual....This is *not* what I meant.

¹Kaplan 1989a: 483.

The "direct" of "direct reference" means unmediated by any propositional component, not unmediated *simpliciter*. The directly referential term goes directly to its referent, *directly* in the sense that it does not first pass through the proposition. Whatever rules, procedures, or mechanisms there are that govern the search for the referent, they are irrelevant to the propositional component, to content. When the individual is determined (when *the reference is fixed*, in the language of Saul Kripke) it is loaded into the proposition.¹

Here Kaplan uses the phrase 'the corresponding propositional component', and tells us that 'without the mediation of a Fregean sense' *means* without the mediation of the corresponding propositional component. How exactly is 'means' to be understood here? Surely Kaplan is not saying that the Fregean sense of a term is *by definition* the corresponding propositional component, otherwise it would not make sense for us to speak of 'the corresponding propositional component' of a directly referential term, because presumably directly referential terms do not have a Fregean sense (which is why these terms do not refer by means of a Fregean sense). And certainly it makes sense to speak of the corresponding propositional component of a directly referential term because a sentence containing a directly referential term does express a 'proposition' or has a 'content'. Indeed, Kaplan tells us that a sentence containing a directly referential term expresses a singular *proposition*, whose component corresponding to the term is its referent.

I do not think that Kaplan is incoherent here, but clearly some clarification regarding 'proposition' and 'propositional component' is needed if we want to understand him correctly.

(i) In the Fregean view, a singular term expresses a Fregean sense which determines its reference; and the Fregean *sense* of a sentence is compounded out of the senses of the constituents of the sentence. But on one quite common use of 'proposition', to say that a sentence *expresses a proposition*

¹Kaplan 1989b: 568-569. Some emphases are mine.

p is to say something more or less the same as that p is *the (Fregean) sense* of the sentence. Accordingly the corresponding 'propositional component' of a singular term is just the sense of the singular term. Since, as just noted, the sense determines the reference, a singular term (if it expresses a sense) must go to its referent by way of the corresponding propositional component; otherwise the term cannot be said to have a sense at all. This is largely a matter of definition. Now if the direct theorist¹ is right about the claim that some singular terms do not express a Fregean sense, does it follow from this claim that directly referential terms do *not* refer to their referent by way of the corresponding *propositional components*?

Well, if 'proposition' is taken to mean just 'the (Fregean) sense of a sentence', then clearly, for any singular term that does not express a sense, there will be *no* 'corresponding propositional component'. In other words, a sentence containing any such term does not express a *proposition* at all. (Of course, the Fregean would not agree that a singular term can refer without expressing a Fregean sense). So if a term does not have a Fregean sense (and thus does not refer by means of a Fregean sense), it does not refer to its referent by way of a corresponding propositional component; as there simply is no 'corresponding propositional component' (that is, the description 'the corresponding propositional component' is vacuous for such a term). But then what does it mean to say that such a term 'loads' its referent into the proposition (this presumably is tantamount to saying that the 'corresponding propositional component' for such a term is its referent)?

(ii) 'Proposition', as used in (i) is equivalent to 'Fregean sense (for a sentence)' or 'Fregean proposition'. However, as we shall see, there is a use of 'proposition' such that (a) a sentence not expressing a 'Fregean proposition' *may* nevertheless express a proposition, (or correspondingly, that it makes sense to

¹I shall use 'direct theorist' and 'theorist of direct reference' synonymously.

speak of 'the corresponding propositional component' of a singular term that does not express a Fregean sense), and (b) propositions, in this sense, play some of the theoretical roles that Fregean propositions have been called upon to play. Let me call such propositions 'propositions in the core sense'.¹

What the Fregean argues is that the entities that qualify as propositions *in the core sense* are the same sort of entities as what Frege calls 'senses' (for sentences). What Kaplan contends is that the Fregean is mistaken because the corresponding propositional (in the core sense) component of some singular terms (names and indexicals) is the individual itself. That is, he contends that the entity which best qualifies as the proposition (in the core sense) expressed by, say, 'Socrates is wise', is not some Fregean sense but the complex <Socrates, being wise>.

Clearly if Kaplan is right, 'Socrates' does not express a Fregean sense, and the sentence 'Socrates is wise' as a whole does not express a Fregean proposition. For presumably 'Socrates' will contribute to a proposition (in the core sense) its Fregean sense *if* it expresses such a sense, but, according to Kaplan, what 'Socrates' contributes to <Socrates, being wise> is the referent. It follows that 'Socrates' is directly referential (in the (NS)-sense) because obviously to say that 'Socrates' does not express a Fregean sense, is to say that it does not refer by means of a Fregean sense. On the other hand, it is not difficult to see that Kaplan's contention also implies that 'Socrates' does not go to its referent passing through the corresponding propositional component first, because the relevant component is the very referent itself. Hence we have a clear account of why Kaplan says that 'referring without the mediation of a Fregean *Sinn*' means that the relation between the linguistic expression and the referent is not mediated by the corresponding propositional component.

¹This definition of 'propositions in the core sense' must not be understood as ruling out Fregean propositions.

Having said this much by way of clarification, we are now in a position to ask a substantial philosophical question. We have seen that if a term α is such that (SP) is true of it, then α is directly referential (viz. (NS) is true of α). But is the referent of a directly referential term what best qualifies as 'the corresponding propositional component' in the core sense? The answer, I think, is an affirmative one. I shall explain why in §1.2 and §1.3 below.

[3] I found it necessary to labour the above clarification mainly for the following reason. In contemporary philosophy it is not easy (and sometimes almost impossible) to determine how "Fregeanly" one should construe the use of the term 'proposition' by a philosopher. This is partly because of the many uses of 'proposition', and partly because of the fact that very often the Fregean conception of propositions has been taken as *the* conception of propositions. Therefore, in what follows I shall identify *some* of the numerous roles that propositions have been called upon to play as the *central* roles, or *core* roles, including, for example, being primary truth bearers. Next, it will be seen how Fregean senses are supposed to perform these roles and how they fare. Then we shall go on to see how singular propositions—or, as one might prefer to put it, the kind of entities that Kaplan calls 'singular propositions'—fare better in performing these roles in a way subject to the constraints imposed by the theory of direct reference (e.g. the theory's verdict on the truth conditions of sentences containing a name.)

I expect that some may think that my choice of these roles is arbitrary or does not conform to their idea of what roles propositions should perform. That, however, wouldn't worry me and, I think, shouldn't worry the reader. The question 'What *really* are the roles that propositions should perform?' is mainly a verbal one, and thus is not important so long as we are aware of how we are using the term 'proposition'. After all, I am not interested in the definition of 'proposition' as such. My aim is rather to get clear on the exact link between the

theory of singular propositions and the theory of direct reference by considering what theoretical roles can be performed by singular propositions, and how, in performing these roles, singular propositions bear out the insights of the theory.

A couple of preliminary remarks to start with. First, it is worth noting that by 'propositions' we shall mean 'structured propositions' because we are concerned with the corresponding propositional components of singular terms. Moreover, to facilitate understanding, *I shall keep the (NS)-meaning of 'directly referential', as it is used in Chapter 1.* That is, when I say that a singular term is *directly referential*, I should be understood as meaning that it *does not refer by way of a Fregean sense.* 'The theory of direct reference' should be understood accordingly. By 'the theory of singular propositions' I shall mean the Kaplanian view that sentences containing directly referential terms express singular propositions—in other words, that the corresponding propositional components of these terms are their referents.

1.2. Senses and General Propositions

'Proposition' is a word of great elasticity and many uses. For our present purposes it is advisable and convenient to distinguish at the outset two sorts of questions. One is 'What theoretical jobs do propositions perform?' The other is 'What constitutes a (structured) proposition?' Different conceptions of propositions may not only have different answers to the second question, but also to the first one.

[1] Let us start with the first question. The list of roles propositions have been called upon by philosophers to perform is indeed a long one. Propositions are said to be, for instance, the primary truth-bearers, assertible content (or what is expressed (asserted) by a declarative sentence), the meaning of a sentence, the object of intentional acts (or propositional attitudes), the information content of

a sentence, so on and so forth.¹ The classical view tends to think that it is the same kind of entity that plays all, or most of, these roles. I don't want to commit myself to such a view here but would rather concentrate on two of the roles which I think distinguish themselves as the most central ones—'primary truth bearer' and 'assertible content'.² Now, if we restrict our attention to these two notions, it should not be very difficult to see that there certainly is a conception of propositions which we can speak of as Frege's, in spite of the fact that 'proposition' is a non-Fregean expression. Frege thinks that it is the same object that plays both roles and holds a view regarding what kind of entity it is. Of course, this need *not* imply that a Fregean proposition does not, or is not supposed by him, to play other roles.

The Fregean counterpart of 'proposition' is what Frege called *Gedanke*—in English, 'Thought'.³ A sentence, according to Frege *expresses* a Thought, which is its sense. 'Truth-bearing', and 'assertible content' are both central in his characterization of Thoughts.

(i) *Thoughts as primary truth-bearers.* In 'The Thought: A Logical Inquiry' Frege writes, 'I call a Thought something for which the question of truth arises.'⁴ He also says: 'what I have called 'Thought' stands in

¹Our list is certainly a short one compared with that given by Paul Gochet. He lists no less than ten meanings associated with 'proposition'. See Gochet 1980: 11-12.

²G. E. Moore: 'propositions are, then, a sort of thing which may be properly said to be true or false'; ' "propositions" is a name for what is expressed by certain forms of words—those, namely, which, in grammar, are called sentences' (1953: 63, 259). F.P. Ramsey: 'Truth and falsity are ascribed primarily to propositions' (1927: 44). G.H. von Wright: 'in order to explain what it means to attribute truth to a sentence we must, I think, refer to the proposition which the sentence in question expresses, i.e. to what the sentence says. Truth, therefore, is primarily an attribute of propositions and not of sentences' (1984: 6f). A. C. Grayling: 'In general, philosophers have been concerned with declarative sentences, those which are used to make assertions; it is this class of sentences which are said to express propositions, to state that some predicate holds of some subject or that certain items are related in a certain way...Propositions, then, and not sentences, are either true or false' (1982: 25). Some, however, dispute the idea of having such entities other than sentences as primary truth-bearers. See also Cartwright 1962, Lemmon 1966, Thomson 1969, Aune 1967.

³To distinguish this use from its usual meaning, 'Thought' will be capitalized throughout the chapter, including when it occurs in quotations.

⁴Frege 1918: 20.

the closest relation to truth.¹ According to Dummett, of the three principle theses Frege has about the notion of truth and falsity, one is 'that to which truth and falsity are primarily ascribed is a Thought'.² Thus, for Frege, Thoughts are primary truth-bearers—entities that stand between sentences and the world which renders the sentences true or false.

(ii) *Thoughts as assertible contents.* According to Frege's analysis of the notion of assertion, we should distinguish the *assertible content* of an indicative sentence, say, 'Kepler died in misery' and the *assertion* itself (or, in Frege's words, the manifestation of the recognition of the truth of a Thought³). The assertible content is the Thought. It is what the sentence 'has in common with the corresponding sentence-question ["Did Kepler die in misery?"]'; as 'the answer "yes" means the same as an indicative sentence'.⁴ So for Frege a Thought is what is expressed by a sentence, and what it would make sense to assert to be true (or false) or to ask whether it is true (or false).

This, I think, has provided the necessary textual underpinning for us to speak of the counterpart of 'proposition'—as it is characterized above in terms of the two central roles—in Frege's philosophy. (Of course, we have yet to see what other characteristics Frege thinks those entities which play these two roles have.) Indeed, Dummett once spoke of the Fregean notion of a Thought as 'the closest analogue in Frege's ontology to be the "proposition" of British philosophers'.⁵ E. J. Lemmon also suggests that 'it is convenient to translate *Gedanke* as "proposition" rather than "Thought" in order to avoid misleading psychological implications'.⁶ I shall largely follow Lemmon's suggestion in the discussions below, but sometimes it is convenient to use 'Thought' in order to

¹*Ibid.*, 35.

²The other two are (a) truth and falsity are related to sentences as their referents; and (b) truth is indefinable. Dummett 1981: 364.

³Frege 1918: 21.

⁴*Ibid.*, 21

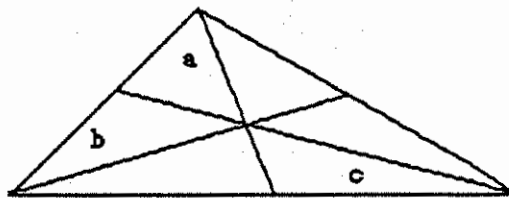
⁵Dummett 1981: 371.

⁶Lemmon 1966: 94.

draw attention to the fact that for Frege a proposition is also a sense (for a sentence) and accordingly has the characteristics that Frege thinks senses have.

Perhaps at this point one might say that Frege's notion of a Thought is a much richer notion than 'assertible content bearing (in the primary sense) truth values', and that, if 'proposition' is going to be a translation of 'Thought', then the *central roles* should at least include some or all of such items as 'object of propositional attitudes', 'what is denoted by the sentence embedded in oblique contexts' and 'information content'. I have no disagreement with the observation that *Gedanke* is a very rich and highly theoretical concept. As will be seen shortly, I shall make clear how rich this concept is by noting the requirements Frege imposed on entities that make up a proposition. Thus, as noted, distinguishing 'the primary truth bearer' and 'the assertible content' from others in the list I gave is, in a sense, arbitrary. But for the sake of exposition, it is best to have a comparatively weak 'core' notion of 'propositions' so that we can speak of entities other than Fregean senses as propositions, and leave it as a further question whether these entities are suitable to perform other roles that Frege considers Thought can perform.

[2] What kind of entity, according to Frege, is a proposition? That is, what kind of thing is the primary truth bearer *and* the assertible content of a sentence? Frege's answer is 'senses'. In 'Sense and Reference', Frege introduces the notion using the following examples



The line a, b, and c connect the vertices of a triangle with the midpoints of the opposite sides. The point of intersection of a and b is then the same as the point of intersection of b and c. Frege says that the *referents* of the expressions 'the point of intersection of lines a and b' and 'the point of intersection of b and c' are

the same, but not their *senses*, which determine the referents. This distinction of sense and reference applies not only to 'names',¹ according to Frege, but to all logically syntactic relevant parts of a complete sentence and to the sentence as a whole. The senses of the parts together determine the sense (Thought) expressed by the sentence. The sentence, like any of its sub-sentential syntactic parts, has a referent, which is its truth value.² The sense of a syntactic part, for instance, a name, is therefore the propositional component corresponding to the name: the sense is what the name contributes to the proposition expressed by a sentence containing that name.³

Thus, on the Fregean theory, the propositional component, or, as we shall also call it, the *propositional content*, of a name is its sense, which is also the referent-determiner. As noted in Chapter 1, being a referent-determiner is just one of the attributes of sense—the attribute which we categorize as the *sense*₂ (or *sense*₅)⁴. Of the other attributes of a sense, one is being the *mode of presentation*, or the *criterion of identity*⁵ for the corresponding referent. According to Frege, in order to understand, say, a name, the speaker must possess some knowledge which enables him to identify the referent of the name. That is, he must have a *route* for discovering the referent of the name. What we know, when we understand a name, is therefore a criterion of identity

¹In Frege's usage, the distinction between 'name' and 'concept-word' (*Begriffswort*) corresponds roughly to the traditional distinction between subject and predicate. So 'name', in Frege's usage has a wider use than its ordinary use: what we ordinarily call 'proper names' and 'descriptions' are *names* for Frege.

²Carnap (1956: §6) tries to dispel the strangeness of this Fregean doctrine concerning the referent of a sentence. See also Church's argument for this doctrine (Church 1943).

³It may be added that Frege distinguishes *direct contexts* from *oblique contexts*. The senses expressed by the same name in these two kinds of contexts are different. A name in a direct context expresses what Frege calls a *customary* sense, but in oblique contexts—for instance propositional attitude contexts—the name has an *indirect* sense referring to its customary sense. This seems to generate an infinite hierarchy of indirect senses, but some Fregeans, e.g. Dummett, think that this is problematic and proposes that the hierarchy be truncated or that the very notion of an indirect sense be eliminated. See Carnap 1956: Part III, Dummett 1981: Ch. 9, Forbes 1987, Linsky 1983: Ch. 3, Parsons 1981.

⁴See Chapter 1: §4 above.

⁵This term is Frege's, introduced in his discussion of numerical identity. See Frege 1950: § 62. See also Dummett 1981: Ch.4 and 179-180.

for the referent. The sense of the name provides, according to Frege, such a criterion. By being a criterion for identifying the referent, the sense also serves as a mode in which the referent is presented to the speaker. Different criteria may identify the same object, just as different routes may lead to the same place, or just as the same thing may be presented in different ways. So the different senses expressed by 'the point of intersection of a and b' and 'the point of intersection of b and c' are just two of the many possible criteria for identifying the same point, that is, just two of the many possible 'modes of presentation' in which the point may be presented to the speaker.

This, however, does not mean that the sense of a name, according to Frege, is the associated psychological 'conception' (or 'idea'¹), such as 'an internal image, arising from memories of sense impressions'.² Sense, as just pointed out, is relevant to what we know when we understand a linguistic expression; thus it is a cognitive notion and is relevant to the cognitive values, or informational value of the expression. On the other hand, Frege was impressed by and has put a great deal of emphasis on the communicability of knowledge and information. So he thinks that senses must be 'communicable' and 'public'. Psychological notions such as conceptions and images are, however, subjective: 'one man's conception is not that of another', and different people, a painter, a horseman, will probably connect different ideas with the same name 'Bucephalus'.³ So they cannot be what constitutes that objective and public 'common store of Thoughts which is transmitted from one generation to another'.⁴

Neither is a sense something of the outer world, according to Frege. Since 'a Thought [is] something for which the question of truth arises'⁵; and 'being

¹In Black and Geach 1952, 'idea' is the preferred translation.

²Frege 1892: 212.

³*Ibid.*, 212.

⁴*Ibid.*, 212.

⁵Frege 1918: 20

true is not a material perceptible property¹. The sun is a perceptible and material object, and it is on the basis of sense-impressions of this object that we see that it is true *that* the sun has risen. But, argues Frege, *that* the sun has risen is not an object which emits rays that reach our eyes.²

Hence a Thought and its constituent senses are neither ideas nor things of the outer world. They are believed by Frege to be conceptual, abstract, immaterial entities³ that exist timelessly and eternally in the 'third realm'.⁴ How then are we related to the denizens of the third realm? With our 'power of *thought*', says Frege, we can 'apprehend' (or 'grasp') senses and Thoughts. So, despite the fact that the senses are not psychological entities, the grasping of them is nevertheless a mental process.

[3] Let us pause to see what sort of a picture of 'propositions' we have got here. According to Frege, a proposition must have these characteristics:

- (P1) It is a primary truth-bearer.
- (P2) It is the assertible content expressed by a sentence.
- (P3) It is made up of reference-determining senses, which are immaterial conceptual objects that reside in a 'third realm' and are 'graspable' by the mind.⁵

It is (P3) that gives this picture its Fregean flavour. Given (P3), propositions must be *general*, in the sense that they are composed of intensional entities, involving no individuals. In the case of a singular term, the obvious candidate for its sense is a conceptual representation, built up from intensional entities, of the referent. The obvious way in which this conceptual representation is to be

¹*Ibid.*, 20

²*Ibid.*, 20

³Or, as philosophers like Linsky and Salmon put it, *intensional* or *conceptual* (in the objective, non-psychological sense) entities.

⁴Concerning the eternalness of Thoughts and Frege's Platonism, see Wright 1983 and Carruthers 1984. See also Kneale and Kneale 1970.

⁵See also Perry's (1979) and Dennett's (1982) characterisation. And also Putnam 1975.

spelt out is in terms of a set of general, qualitative properties associated with the term. In other words, the sense of a singular term, in order to meet the requirement that Frege imposed for being a sense, has to be a conceptual representation, or individual concept (as it is called by some Fregeans), specifiable in terms of a set of general properties. This conceptual representation will identify and determine the referent in terms of 'descriptive fit', in the sense that the referent of the term is supposed to be whatever or whoever uniquely satisfies¹ all the relevant general properties.² This conceptual representation is what we have called a 'descriptive sense'.³ A description, on this account, provides the paradigm of singular reference. Hence the description theory. Names, as well as other singular terms such as indexicals, are therefore assimilated semantically to descriptions; they all denote their referents through the mediation of the descriptive senses they express.

In other words, on this picture, all propositions are general propositions. In particular, what any singular term contributes to a proposition will be the descriptive sense it expresses, that is, the associated conceptual representation.

1.3. *Singular Propositions and The Theory of Direct Reference*

[1] One can see that the description theory is thus part and parcel of the Fregean picture of a proposition. Accordingly, though there is hardly any 'proposition-talk' in the the anti-Fregean arguments advanced by such philosophers of direct reference as Kripke and Donnellan, yet the theory is as

¹One may want to replace 'uniquely satisfies' with 'best satisfies' in order to accommodate such a revised version of the descriptonal theory as that advanced by Searle, according to which the denotation need not be identified with whatever uniquely satisfies *all* properties associated with a singular term. See Searle 1958 and 1967.

²To extend this account to modal semantics and tense logic, one may rewrite the last clause as 'that the referent of the term with respect to a time *t* and a world *w* is supposed to be whatever or whoever uniquely satisfies all the relevant general properties at *t* and in *w*'.

³See Chapter 1: §4 above. Are there non-descriptive senses for singular terms? I cannot see how such a notion is possible. If senses have all the attributes Frege thinks they have, the obvious and only way a singular term can denote by way of sense is, as far as I can see, to denote by way of a conceptual representation as I have explained earlier.

much a revolt against the above Fregean conception of propositions as a revolt against the Fregean description view of reference. Consider for example the sentence (S) 'Socrates is wise'. According to the Fregean semantics, (S) expresses a general proposition *p*, which has as one of its constituents the descriptive sense expressed by 'Socrates'. The arguments of the theory of direct reference have shown that the reference of 'Socrates' (or, in general, any name or any indexical), is not mediated by a descriptive sense; that is, the term 'Socrates' does not express a descriptive sense. There is no need to repeat the arguments in order to see that, as arguments against the description theory, they also entail that the Fregean picture of general propositions is in serious trouble. If 'Socrates' does not express a sense, then (S) cannot possibly express the general proposition *p* (though *p* might be a proposition expressed by some other sentence, probably one of the form 'the so and so is wise'). For nothing can satisfy all of (P1), (P2) and (P3) in regard to (S). Put another way, if the theory of direct reference is right, the corresponding propositional components—where 'proposition' is understood as defined in terms of (P1) and (P2)—of such kinds of terms as names and indexicals cannot be the associated conceptual representations.

The theory of singular propositions, according to which the propositional content (the corresponding propositional component) of a directly referential term is identical with its referent, gives a nice expression of this rejection of the general propositions account by the theory of direct reference. On the theory of singular propositions, the propositional content of 'Socrates' is the individual Socrates, and the proposition expressed by 'Socrates is wise' is the complex <Socrates, being wise>. So the proposition expressed by the sentence cannot be a purely intensional entity. Indeed, the theory of singular propositions also offers very nice expressions of some other core ideas of the theory of direct reference.

[2] As we have seen, according to the theory of direct reference, the truth condition of a sentence $F(a)$ (where 'a' is a directly referential term referring to the object x) is *not* a matter of whether the unique object having a certain set of properties is F ; instead it is a matter of whether x is F . The object x *itself* (rather than some properties which an object would have to possess in order to be denoted by 'a') is, as one may therefore say, what 'a' contributes to the truth condition of $F(a)$. This idea underlies the modal argument against the description theory: the truth condition of a sentence, for instance, 'Aristotle is fond of dogs', as it describes a *counterfactual* circumstance is such that the sentence is true iff the *very* individual fixed to be the referent would have the property F had the circumstance obtained. That is why Kripke says:

The doctrine of rigidity supposes that a painting or picture purporting to represent a situation correctly described by (1) [= 'Aristotle is fond of dogs'] must *ipso facto* purport to depict Aristotle himself as fond of dogs. No picture, purporting to represent someone else and his fondness for dogs, even if it depicts the other individual as possessing all the properties we use to identify Aristotle, represents a counterfactual situation correctly described by (1).¹

What account of propositional components can provide better expression of this idea than the theory of singular proposition? According to the theory, we may think of the proposition expressed by 'Aristotle is fond of dogs' as something like the ordered pair <Aristotle, being fond of dogs> (call this proposition q). Now, since q contains the flesh and blood Aristotle, to evaluate the truth value of q at a counterfactual circumstance c , it is obvious which individual in c is the one that we should be looking at: it is Aristotle himself, rather than the unique object in c which happens to have the properties specified by a certain

¹Kripke 1980: 12.

individual concept. Rigidity is thus achieved. This point has been put, a trifle picturesquely, by Kaplan in his latest remark about rigid designation.

If the individual is loaded into the proposition (to serve as the propositional component) before the proposition begins its round-the-worlds journey, it is hardly surprising that the proposition manages to find that same individual at all of its stops, even those in which the individual had no prior, native presence. The proposition conducted no research for a native who meets propositional specifications; it simply 'discovered' what it had carried in. In this way we achieve rigid designation.¹

Of course, a general proposition, for instance $\langle C, \text{the property } F \rangle$, where C is an individual concept of some *individual essence*, whatever this may mean, will also manage to find the same individual at all its stops²; but the rigidity, in this case, is achieved by "conducting research for a native who meets propositional specifications" (though such research "happens" to find the same object, if it finds one, at each stop). (Recall the distinction between *de jure* rigidity and *de facto* rigidity in Chapter 1.) Thus any term t expressing the concept C is semantically distinct from a name, or any directly referential term: t does not contribute its referent to the proposition. Hence, when we think of direct reference in terms of the notion of a singular proposition, we have a clear account of how the rigidity of, say, names, comes in only as a *result of*, and is underlain by, the direct referentiality of names.

The theory of singular terms, one may therefore say, provides a transparent way of stating the truth conditions of sentences containing directly referential terms and explaining, as it were, 'the deep structure' for rigid designation of directly referential terms.

¹Kaplan 1989b: 569.

²Or more accurately, 'all its stops where there exists an object having that essence'.

[3] As it was noted in Chapter 1, all the originators of the theory of direct reference, Kaplan, Kripke, Donnellan, and Putnam, espouse the 'historical-causal' theory of the reference of names, or as it is generally called, the causal theory of reference. I also briefly noted that the theory is one that concerns *reference-fixing* rather than *meaning-giving*. Equipped with the notion of a singular proposition, we can give a clear account of the place of the causal theory of reference in the general picture of the semantics of names.

On the theory of singular propositions, a directly referential term contributes its referent to a proposition. So the propositional component itself, contrary to what the Fregean thinks, cannot at the same time be the reference-determiner. A natural question to ask, then, is *What is the mechanism by means of which the referent is determined? That is, what determines which individual is to be the propositional component?* It is clear that no matter what the answer is the mechanism is no part of the propositional content, or 'what is expressed'; the corresponding propositional component is the individual determined, not the mechanism itself.

The causal theory of names provides an account of the mechanism, as it is precisely an account of how the reference of a name is determined. The central idea of the theory is that the mechanism is a causal one: what determines the referent of a name is some causal-historical chain leading from the use of the name to a dubbing or baptism where an individual bestowed the name. How exactly this idea is to be fleshed out need not concern us here.¹ What is important is that the causal history is what governs the search for the referent, but is irrelevant to the propositional content. When the individual is determined, it is loaded into the proposition. The theory is therefore a theory of the mechanism of reference: it tells us the basis of how to discover the individual that is to be loaded into the proposition, but it does not *state* the

¹See Donnellan 1974, Kripke 1972, Devitt 1981, Evans 1973.

propositional content of the name, for the obvious reason that the individual loaded is itself the content.

This puts us in a better position to give a clear account of Kripke's distinction between reference-fixing and meaning-fixing, which some philosophers think is dubious or unclear. Kripke brings up this notion in discussing the introduction of a name by a description. He thinks that introducing a name by a description can be taken as either fixing the reference or giving the meaning, and that the Fregean view is that it should be taken as the latter. Now, in terms of the theory of singular propositions, this may be understood as follows. The notion of reference-fixing is a *pre-propositional* notion, in the sense that it is relevant to the mechanism that determines the individual that gets loaded into a proposition. In the situation in which a name is introduced by description, the mechanism may involve a kind of Fregean sense, in the sense that the referent is to be determined as whatever is uniquely identified by the individual concept expressed by the description. Nevertheless in such a situation the propositional component is still the individual identified, not the individual concept. By contrast, on the Fregean account, the introduction gives a meaning to the name introduced; and the name, having been so introduced, will contribute the relevant individual concept to the proposition.

The causal-history chain underlying a use of a name, as noted, is also a mechanism of reference, so it is relevant to reference-fixing. Of course, we need not regard the introduction-by-description and the causal mechanism as two entirely separate kinds of mechanisms. A causal chain may lead back to a baptism or dubbing in which an object is introduced by a description. In that case, the causal mechanism will involve some Fregean element, but the point

remains that the mechanism is by no means part of the propositional component.¹

I hope I have made it clear what the exact link between direct reference and singular propositions is. Of course, it is possible to argue that one can espouse direct reference without buying the theory of singular propositions. The theory of direct reference and the theory of singular propositions are not by definition the same. But if what has been said so far is correct, I think one is justified in claiming that the conception of singular propositions is the most congenial account of structured propositions for those holding the theory of direct reference.

1.4. *Singular Propositions and the Necessary A Posteriori*

What is the bearing of the theory of singular propositions on the issue of necessary *a posteriori* truths?

On the theory of singular propositions, it is clear that co-referential names have the same propositional content, and thus 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' express the same proposition. So one may rehearse the argument against Kripke's Thesis set out in Chapter 2. But in Chapter 3, we rejected the argument by arguing against its underlying assumption that '*a priori*' applies to propositions *simpliciter*. I cannot see why thinking of a proposition as a structured entity should make one see the situation differently.

But Salmon, one of the most prominent exponents of the theories of direct reference and singular propositions, does not think so. He recently delighted the opponents of Kripke's Thesis by arguing, in *Frege's Puzzle*, that

¹In regard to the role of descriptions in a causal theory of reference, there is an interesting problem known as the 'qua problem'. See for example Devitt and Sterelny 1987. I shall not be discussing this problem.

Kripke's Thesis is clearly *false* from the viewpoint of the theory of singular propositions.

Actually, the issue whether Kripke's Thesis is false is not the main concern in *Frege's Puzzle*. Salmon presents his argument against the Thesis in an appendix, as a by-product of the overall theory of information values he puts forward in the main part of the book. This, however, does not mean that we can take it lightly. On the contrary, it is precisely because Salmon's criticism is allegedly a result of his overall theory that I think it must be taken seriously. For being a staunch defender of the theory of direct reference and having helped reconstruct, clarify, and elaborate the main argument for the theory, Salmon agrees with Kripke on most of his doctrines concerning names and reference, in particular that of the truth evaluation of sentences containing proper names.¹ Indeed the background semantics of the theory of information values in *Frege's Puzzle* is precisely the theory of direct reference; and the account of propositions Salmon espouses in the book takes seriously the concept of 'singular proposition'.

Hence Salmon's criticism of Kripke's Thesis distinguishes itself from others: it is an internal criticism by one sympathetic to the theory of direct reference, rather than an external one from an adversary. Furthermore, it is based on a conception of structured propositions which the Kripkean or the direct theorist would not reject. It, if successful, will carry the weight of a knockout blow, and therefore should receive our serious consideration. I shall devote the rest of this chapter to examining this criticism and shall argue that it is unsuccessful.

Salmon's argument against the thesis, as it is presented in Appendix B of *Frege's Puzzle* is deceptively simple. But in order to evaluate this argument, it is necessary to put it in the context of the semantic-informational theory Salmon

¹See Salmon 1982, which has become one of the most important works in the theory of direct reference.

advances in the book for solving Frege's Puzzle. So let us begin with a sketch of the puzzle and Salmon's solution.

2. Salmon on Frege's Puzzle and Kripke's Thesis

2.1. *The Naive Theory of Information Value*

[1] Frege's theory of sense was motivated by a puzzle about the cognitive values of names, which has often been referred to as 'Frege's paradox' or 'Frege's puzzle'. Accordingly, the notion of a sense is a cognitive notion closely tied up with the notions of understanding and knowledge. Kripke and other direct theorists rejected the Fregean theory on the grounds that, despite its power in solving the cognitive issue, the theory gives an incorrect account of how the reference of names and indexicals is determined and of the truth-conditions of sentences involving these terms. They have argued forcefully that their account gets the reference and the truth-conditions right. Naturally, the next task for the direct theorists is to show how he can deal with the cognitive issues.

Some direct theorists like Wettstein take a radical move by claiming that the new theory (the theory of direct reference, in our terminology) is incapable of resolving the cognitive problem.¹ He then tries to make this claim palatable by arguing that it should not be part of the business of the new semantic theory to deal with cognitive issues. That a semantic theory should be capable of solving cognitive problems (in particular Frege's puzzle), Wettstein maintains, is only a condition of adequacy imposed on semantic theories by the Fregean conception of semantics. The new theory, according to Wettstein, rests on a radically different conception of semantics. He therefore urges that we reject Frege's condition of adequacy and not worry about cognitive issues.

¹See Wettstein 1986.

Salmon chooses to confront the problem. In *Frege's Puzzle*, Salmon propounds, on the basis of the theory of direct reference, a theory of cognitive contents (or information) and then shows how one can deal with Frege's puzzle. This theory is a sophistication of what he calls the *naive theory of information value*. The naive theory had been attacked by Frege and Russell (despite the fact that they both 'came to philosophy of language with an initial predisposition toward something like the naive theory')¹, and 'has been rejected as patently false by the majority of contemporary philosophers of language'.²

The naive theory rests on a picture of naming similar to what Gilbert Ryle called the 'Fido'-Fido theory, which regards the 'meaning' or content of a singular term as just its referent. This picture of naming, as one can see, is radically different from the Fregean picture but is quite in line with the picture which the direct theorist offers. One of the major aims of *Frege's Puzzle* is to modify the naive theory in the light of the direct theory of reference and Kaplanian double-index semantics.³ The result is a complex theory of semantic value, which, owing to Salmon's identification of the *semantical* with the *informational*, also serves as a theory of information values. I shall not try to summarise this complex theory. For our purposes it suffices to set out its core ideas.

[2] In the heart of the naive theory are two ideas. The first one concerns sub-sentential expressions: the information value of a singular term is simply its referent; likewise, the information value of a predicate is identified with the attribute semantically associated with it. The second idea concerns sentences: the information value of a sentence, which Salmon also calls *information content*,⁴

¹Salmon 1986: 122.

²*Ibid.*, 1.

³As a matter of fact, the modified naive theory itself has two versions, the singly modified version and the doubly modified version, the latter being an improvement of the former. See Salmon 1986: Chapter 2.

⁴That is, Salmon uses 'information content' exclusively for the information value of a *sentence*.

is made up of the information values of its information-valued components.¹ Aiming to offer a theory which will do justice to the philosophically entrenched idea about the eternalness of information, and which can handle the phenomena of tense and indexicality, Salmon elaborates these two ideas and ends up with a four-tiered theory of semantic-information values which has four primary semantic values: program, information-value base, information value, and extension. Salmon summarizes this theory in terms of nine central theses concerning the information contents of various kind of expressions (including sentences, singular terms, predicates, quantifiers, sentential connectives, etc.) Here are four of them.²

Thesis 1. (Declarative) sentences *encode* pieces of information, called *propositions*. The proposition encoded by a sentence is its *information content*.

Thesis 2. The information content of a sentence is a complex, ordered entity (e.g. a sequence) whose constituents are semantically correlated systematically with expressions making up the sentence, typically the simple (non-compound) component expressions.

Thesis 3. The information value (contribution to information content) of a name is its referent.

Thesis 4. The information value of a simple n -place first-order predicate is an n -place attribute.

From Thesis 1 one can see that a salient character of this theory is that the information conveyed by a sentence is identified with the proposition expressed

¹See Salmon 1986: Chapter 2 and Appendix C. It is worth mentioning that these two sections of Salmon's book and his 1989a together offer one of the most elaborate and rigorous theories of semantic value in the 'direct reference' tradition. See also Salmon 1989c.

²The theses listed correspond to Thesis I', Thesis II', Thesis III'' and Thesis V'' in Salmon's list (1986: 41f). I have made two changes: (a) relativization of information value to context and time has been dropped, (b) 'a simple singular term' is replaced by 'a name' in Thesis 3. This is purely for the sake of brevity: in Salmon's discussion of Kripke's Thesis, the example he uses is also 'Hesperus is Phosphorus' (see §2.3 below), and the notion of 'context' has no bearing in his argument or mine.

by the same sentence. To indicate this identification of the informational with the semantical (or the propositional, in the case of a sentence), Salmon employs the terminological device of 'encoding'. So when Salmon says that the sentence *S* encodes *p*, he means that *p* is not only what *S* semantically expresses but is also what *S* informationally conveys.¹

Thus, on the naive theory, the information conveyed by, say, 'Russell is tall' is the singular proposition that the sentence encodes (or expresses). This proposition is made up of the information value of 'Russell', which, according to Thesis 3, is the *individual* Russell, and the information value of the predicate 'is tall', which, according to Thesis 4, is the property of being tall. So the information value of the whole sentence is a complex abstract entity made up of the individual Russell and the property of being tall, something like the ordered couple <Russell, being tall>.

2.2. Frege's Puzzle and Salmon's Resolution

[1] A major problem for the naive theory, and a problem which is regarded by many philosophers as the *bête noire* of the direct theory of reference, was presented by Frege as a puzzle about the cognitive informativeness of identity statements involving distinct names. The puzzle receives thorough reconstruction and analysis by Salmon. The gist of the puzzle can be captured, however, by means of the following simple example.

On the naive theory, pairs of sentences such as 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' encode the same piece of information because they express the same singular proposition. This seems to imply that if

¹Salmon often qualifies the word 'encode' with 'semantically' and says something like 'the proposition *p* semantically encoded by the sentence *S*' or 'the piece of information semantically encoded by *S*' (e.g. in p. 88ff.) Such uses of 'semantically' should be understood as emphatic; it is wrong to think that they imply that a sentence can *encode*, as the word is used by Salmon, a piece of information, or a proposition, in a non-semantical sense. Salmon will say that a sentence non-semantically (for instance, pragmatically) *conveys* a piece of information.

- (1) Orcutt believes that Hesperus is Hesperus,

then

- (2) Orcutt believes that Hesperus is Phosphorus.

Yet Orcutt, understanding fully both 'Hesperus is Hesperus' and 'Hesperus is Phosphorus', can sincerely assent to the former without assenting to the latter. Thus Salmon must explain how Orcutt seems to be able to believe, and at the same time not believe, the same proposition, i.e., the same piece of information.

[2] Salmon's solution goes like this. First of all he gives an analysis of the binary relation of 'believing' between any believer A and any proposition p in terms of existential quantification and a *ternary relation* which holds between A, p, and a *way of grasping* the proposition. The central claim of this analysis is:

- (B) 'A believes p' may be analyzed as: $(\exists x)[A \text{ grasps } p \text{ by means of } x \text{ \& } BEL(A, p, x)]$,

where 'BEL(A, p, x)' means 'A is inwardly, or mentally, disposed to assent to p as grasped by means of x'.

The variable 'x' in (B) ranges over ways in which a proposition may be taken or grasped. Since a singular proposition, such as for example <Russell, being tall>, is not a purely intensional entity and may contain non-conceptual objects as its constituents, it has, according to Salmon, 'appearances' and can 'take on guises' in the same way that the individual Russell does. So, there can be different ways in which we grasp the same proposition. In Orcutt's case, when Orcutt 'reads and understands the sentence "Hesperus is Phosphorus"', he takes the proposition thereby encoded in a way different from the way in which he takes this same proposition when he reads and understands the sentence "Hesperus is Hesperus".¹ Thus Orcutt's problem is that he 'grasps the very same

¹Salmon 1986: 113.

proposition in two different ways, by means of two different guises'.¹ He assents inwardly to the proposition when it is grasped by means of one guise, but has no inclination to do so when it is grasped by means of another guise. And since his verbal assent and his refraining from verbal assent with respect to the two sentences, viz. 'Hesperus is Hesperus' and 'Hesperus is Phosphorus', are merely the outward manifestations of his inward dispositions relative to the ways he takes the proposition encoded by the two sentences, it is no wonder that he assents to 'Hesperus is Hesperus' but not to 'Hesperus is Phosphorus'.

Salmon's account has the following consequence concerning substitutivity in propositional attitudes contexts. A crucial point in Salmon's solution is that Orcutt may stand in the ternary relation BEL to a proposition *p*, and some way-of-grasping *x*, by means of which he grasps *p*, but need not therefore stand in BEL to *p* and *y*, for every way-of-grasping *y*, by means of which he grasps *p*.² Hence, although Orcutt does not stand in BEL to the proposition that Hesperus is Phosphorus (= the proposition that Hesperus is Hesperus) and *z*, where *z* is the way Orcutt would grasp the proposition were it presented to him through the very sentence 'Hesperus is Phosphorus', yet, owing to the fact that (B) involves existential quantification over ways of grasping a proposition, it is as true to say that Orcutt believes that Hesperus is Phosphorus as it is to say that Orcutt believes that Hesperus is Hesperus.

Salmon's theory therefore entails the substitutivity of sentences encoding the same proposition in propositional attitudes contexts: Orcutt believes that Hesperus is Hesperus only if he also believes that Hesperus is Phosphorus, and conversely. This seems to clash with ordinary usage of 'believe'. '[O]rdinary usage is a reliable guide to correct usage', Salmon says, 'but it is only a guide'.³

¹*Ibid.*, 113.

²When confusion may arise, hyphens will be used, as in 'way-of-grasping *y*', to disambiguate two possible readings of 'way of grasping α ': (1) where α is a way of grasping, and (2) where α is a proposition. When this device is used, (1)-reading is intended.

³Salmon 1986: 84.

Ordinary usage can sometimes be incorrect, he adds, as in the case of reporting Orcutt's beliefs. Instead of simply making this bold claim, Salmon offers an explanation of "why we speak the way we do", that is, why we are inclined to say *erroneously* that Orcutt does not believe that Hesperus is Phosphorus.

The main idea is this. The that-clause of a belief attribution can be used to perform a *pragmatic function*. The sentence (1) pragmatically implicates that Orcutt agrees to the proposition that Hesperus is Phosphorus (i.e. the proposition that Hesperus is Hesperus) when he takes it in the way it is presented to him through the sentence 'Hesperus is Hesperus'. This is a true implicature. In contrast, (2) involves the *false* implicature that Orcutt agrees to the proposition when he takes it in the way it is presented to him through the sentence 'Hesperus is Phosphorus'. Thus when our purpose is to convey not only what Orcutt agrees to, but also how he takes what he agrees to when he agrees to it, we would use (1) to report Orcutt's belief and would reject and deny (2) in order to deny the false implicature involved.¹

2.3. Salmon's Criticism of Kripke's Thesis

In Appendix B of *Frege's Puzzle* Salmon criticizes Kripke's claim that sentences such as 'Hesperus is Phosphorus' are necessary and yet *a posteriori*. His disagreement with Kripke concerns the epistemological status of these sentences:

I have no disagreement with Kripke concerning the modal status of such sentences as 'Hesperus is Phosphorus', but I sharply disagree concerning their epistemological status.²

Here is Salmon's observation in support of his disagreement.

¹*Ibid.*, 114-118.

²*Ibid.*, 137. I have changed Salmon's example, i.e., 'Hesperus, if it exists, is Phosphorus' to the example I have been using, i.e., 'Hesperus is Phosphorus'. But this change will affect neither what Salmon aims to argue for nor what I shall say about his argument. See also the relevant note in §1 of Chapter 2.

We must not mistake the information *pragmatically imparted* by utterances of 'Hesperus is Phosphorus' for part of the *information content* of the sentence, which is the information *semantically encoded* by the sentence. An example of the information *pragmatically imparted* by utterances of 'Hesperus is Phosphorus' is the piece of information that *the name 'Hesperus' and the name 'Phosphorus' refer to the same thing*. This piece of information concerns some semantic fact about the English names 'Hesperus' and 'Phosphorus'; it is clearly both contingent and *a posteriori*. So it is true that

- (3) "'Hesperus" and "Phosphorus" refer to the same thing' is knowable only *a posteriori*.

But the piece of information that *the name 'Hesperus' and the name 'Phosphorus' refer to the same thing* is not part of the information content of 'Hesperus is Phosphorus'. Thus from (3), it does not follow that

- (4) 'Hesperus is Phosphorus' is knowable only *a posteriori*.

In fact, (4) is false because the information content of (namely the singular proposition expressed by) 'Hesperus is Phosphorus', which 'is just the fact that if Venus exists it is it',¹ is knowable *a priori*. But Kripke has failed to distinguish the information pragmatically imparted by 'Hesperus is Phosphorus' from the information semantically encoded by 'Hesperus is Phosphorus', so he mistakenly claims that (4) is true.

In other words, Salmon accuses Kripke of making a kind of 'use-mention' confusion. Some other critics of Kripke, Pavel Tichy for instance, have made similar accusations. Like Salmon, Tichy agrees that, given Kripke's semantical view, when 'Hesperus is Phosphorus' is uttered, 'what has been asserted is a necessary truth'. But, he adds:

¹Salmon 1986: 137.

...it seems equally obvious that this very same truth is also knowable *a priori*. It is a case of the general *a priori* principle...that every single thing is identical with itself.¹

So, he concluded that the only way to make sense of Kripke's argument (that 'Hesperus is Phosphorus' is necessary *a posteriori*) is by assuming that

when he insists that (1) [= 'Hesperus is Phosphorus'] is *a posteriori* he does not mean that what (1) says can only be known *a posteriori*. He is not ascribing aposteriority to the proposition expressed by the sentence but rather to the proposition *associated* with it [that is, the proposition that the sentence 'Hesperus is Phosphorus' is true].²

However, I find it very hard to believe that Kripke could have erred in this way. In discussing the modal status of such sentences as 'Hesperus is Phosphorus', Kripke warns us not to confuse the semantic fact that the names 'Hesperus' and 'Phosphorus' are co-referential (or the fact that 'Hesperus is Phosphorus' is true) with the necessary fact that Hesperus and Phosphorus are identical.³ In fact, Salmon has noticed this too:

Kripke defends his thesis that such sentences [as 'Hesperus is Phosphorus'] are necessary by warning against a potential confusion of the fact that Hesperus and Phosphorus are identical (which he alleges to be necessary) with the distinct, semantic fact that the names 'Hesperus' and 'Phosphorus' are co-referential (which is assuredly contingent).⁴

But why does he still think that Kripke has failed to heed his own warning in considering the separate question of the epistemological status of these sentences? The answer, I think, is that Salmon is convinced that, given his theory of singular propositions, (4) is clearly false.

¹Tichy 1983: 232.

²*Ibid.*, 233.

³Kripke 1971: 155ff, Kripke 1972: 102-104.

⁴Salmon 1986: 133, emphasis added.

2.4. Salmon's Characterization of *A Priority*

[1] What, then, leads Salmon to the conviction that, given his theory, 'Hesperus is Phosphorus' is clearly *a priori*? A clue to answering this question can be found in the same appendix where he accuses Kripke of the above-mentioned confusion; Salmon says:

...epistemological properties such as *a priority*, *a posteriority*, and informativeness apply, *primarily* and in the first instance, to propositions ... and apply *derivatively* to the sentences that encode these propositions. A sentence S may be said to be *a priori*, [in] the *derivative* sense, if its information content [is] *a priori* in the *primary* sense, that is, if the information content is *in principle knowable solely on the basis of reflection on the concepts (or other proposition components) involved*, without recourse to sensory experience.¹

Two major theses about *a priority* can be extracted from this passage.

- (Ca) '*A priori*' applies primarily, and in the first instance, to propositions, and applies derivatively to sentences.
- (Cb) A proposition is *a priori* if it is in principle knowable solely on the basis of reflection on the concepts (or other proposition components involved), without recourse to sensory experience.

Together (Ca) and (Cb) give a characterization of *a priority*. I shall call this characterization '(C)'. According to (C) and his theory of singular propositions, Salmon argues, (4) is clearly false. His reason: given (Ca), whether the sentence 'Hesperus is Phosphorus' is *a priori* depends on whether the proposition it expresses is *a priori*. But the proposition expressed by 'Hesperus is Phosphorus',

¹ *Ibid.*, 133; emphasis added.

Salmon says, is a 'truth of logic (in the derivative sense)'¹ and is fully knowable 'by reason alone'. So, according to (Cb), the proposition is *a priori*.

To challenge this line of reasoning, two questions may be raised:

- (Q1) Is (C) an acceptable characterization of *a priori*?
- (Q2) Is 'Hesperus is Phosphorus', as Salmon thinks, clearly *a priori*, given (C) and his view on propositions?

Take (Q1) first. Certainly (Ca) and (Cb) considered together by no means give a *full* analysis of the concept of *a priori*. But to charge Salmon on this count is not fair. It is quite clear that he is not interested in giving a full analysis of *a priori*. His real concern is to argue that, given his theory of propositions, 'Hesperus is Phosphorus' is *a priori*. And he seems to think it adequate for his purpose to provide a rough characterization of *a priori*. At least on the face of it, (C), as a rough characterization, appears quite unproblematic. It is true that it does not go very far towards explicating the traditional definition of *a priori*, but it does not seem to go counter to it either.

[2] However, given the two-dimensional view I expounded in Chapter 3, (C), even as a rough characterization, is clearly *not* acceptable. For the first thesis (Ca) of (C) is just the assumption (T), which has been rejected by our sentence-relative account of *a priori* propositions. But a negative answer to the (Q1) means that Salmon's criticism of Kripke's Thesis is powerless even if he scores well in regard to the second question, that is, even if the answer to (Q2) is 'yes'.

As noted, the two-dimensional view was established in the context of the possible worlds semantics, according to which propositions are unstructured entities. But in the present context, propositions are being thought of as more

¹*Ibid.*, 137. Not 'truth of logic in the *primary* sense' because, according to Salmon, 'logical attributes such as logical validity (logical truth), consistency....apply, primarily and in the first instance, to sentences or sets of sentences' (*ibid.*, 133).

fine-grained entities that have structures and constituents. One might therefore doubt the power of the above objection to Salmon's criticism of Kripke's Thesis.

This should not really worry us. The gist of the view presented in Chapter 3 is that the relevant notion of 'our world', which underlies our understanding of '(knowable) without resort to *empirical investigation*', is two-dimensional. The possible-worlds semantics offers us a convenient machinery for exposition precisely because of its coarse-grainedness. But the plausibility of our idea does not hinge on the coarse-grainedness of the conception of propositions we adopted there.

But one cannot deny that, granted (C), Salmon seems to have made out a good case for the claim that 'Hesperus is Phosphorus' is *a priori*. So, in order to strengthen my objection and in order to forestall the possible accusation that I fail to give Salmon's view a fair hearing, I shall now turn to the second question (Q2), assuming, for the sake of argument, that (C) is acceptable. I shall argue that, even given this assumption, the apparent cogency of Salmon's argument is only a deception.

The key phrase in (C) is 'in principle knowable solely on the basis of reflection on the concepts (or other propositional components) involved'. It is necessary to spell this phrase out, if one wants to know whether it really is the case that, given (C) and Salmon's view on propositions, 'Hesperus is Phosphorus' is *a priori*. So the question now is: given Salmon's view on propositions, is there a way of spelling out the key phrase in (C) so that 'Hesperus is Phosphorus' will turn out, as Salmon says, *a priori*?

To answer this question, we must look more closely at Salmon's view on propositions. Salmon holds what we may call an 'unorthodox conception of the nature of propositions', for he rejects the account of propositions underlying what he calls the 'orthodox conception' of reference and information content, as advocated by Frege and Russell.

3. The Orthodox Conception of the Nature of Propositions

As we have seen, Salmon holds an account of singular propositions, which is sharply different from Frege's account, according to which all propositions are general. However, one should not think that what makes Salmon's account 'unorthodox' and Frege's 'orthodox' is a matter of the acceptance of 'singular propositions'. Russell (at some stage) embraced the idea that what a proposition is about may occur as a constituent of the proposition, and held a version of the theory of singular propositions. Indeed, Salmon has described Russell as 'the staunchest and foremost champion of something very much like the singly modified naive theory'.¹ But, according to Salmon, Russell is nevertheless in the orthodox camp.

Let us see how Salmon characterizes Frege's version of the orthodox conception:

On the Fregean conception, every piece of cognitive information, every "Thought," is made entirely of things like conceptions. ...To apprehend such a "Thought" is, it seems, to be fully acquainted with it. There is no changing appearance, no superficial surface concealing the soul, no guise or veil of outward manifestation interceding between the subject and the thing in-itself. To apprehend it is, as it were, to see through it, to see directly to its very soul.²

The same, Salmon thinks, is true of Russell's conception, according to which, for a singular proposition, the 'only constituent other than things like concepts

¹*Ibid.*, 45. The singly modified naive theory is one of the two modified versions of the naive theory that Salmon has presented. The other one is the doubly modified naive theory. But, as far as our purposes are concerned, we can ignore the differences between the two versions.

²*Ibid.*, 107.

is a particular sensation or visual sense datum, an item of "direct acquaintance".¹

Though this is almost all that Salmon has to say about the orthodox conception, one can see from this that what underlies these two conceptions is a certain *epistemic view* concerning the constituents of propositions. The fact that Salmon rejects this view is, as we shall see, very central to our evaluation of his criticism of Kripke's Thesis. Therefore, it is worth our while to add some details to the orthodox picture as given by Salmon.

3.1. *The Fregean Conception*

The Fregean notion of a sense, as we have seen, is a highly theoretical one. The notion is also a cognitive one and is closely tied up with the notions of understanding and knowledge. To understand a sentence is to know its sense. Hence McDowell says:

Frege's notion of sense belongs with the notion of understanding, and we can get what is involved in understanding a language by careful employment of the notion of knowledge.²

As noted, senses are regarded by Frege as residing in the third realm—as distinct from the realm of mental entities and the 'realm of reference', which 'is just the reality of which we speak and in virtue of which the propositions (Thoughts) we express are true or false'.³ Senses are objective, public, and available to each user of the language. They are timeless, can be expressed and conveyed to one another, and in the case of propositions, can be asserted. How then are our minds related to such a realm of special things, which we

¹*Ibid.*, 107f. Salmon does not indicate explicitly that this is Russell's conception, but, given the context and the references to 'sense datum' and 'acquaintance' (see my exposition below of Russell's view) one can safely say that what Salmon has in mind here is Russell's version of the orthodox conception.

²McDowell 1977: 162.

³Dummett 1981: 154.

presumably cannot be acquainted with by means of sense perception or internal sensation. Frege says:

So it is advisable to choose a special expression and the word 'apprehend' offers itself for the purpose. A particular mental capacity, the power of thought, must correspond to the apprehension of Thought. In thinking we do not produce Thoughts but we apprehend them. For what I have called Thought stands in the closest relation to truth.¹

The expression 'apprehend', Frege says, is *metaphorical*.² Frege has not told us what the 'apprehending', or 'grasping', of a sense is or amounts to. The mysterious transaction between mind and a sense (or a proposition) as a Platonic object has been the subject of a lot of discussion.³ But one thing is very clear: according to Frege, to apprehend (or grasp) a sense, no mediation is supposed to be needed. Consider for example the sense of a name. The purely qualitative description semantically associated with 'Hesperus' provides the speaker with a mode of presentation of the object denoted. The description, or equivalently, the corresponding conceptual representation is the mediation by means of which the speaker thinks of the object. Since concepts are objective entities graspable by all speakers, the conceptual representation associated with 'Hesperus' provides an *objective* and *public* vehicle for communication of Thoughts, information, and knowledge that members of the linguistic community have concerning Venus. But the sense expressed by 'Hesperus' will have the desired objectivity and publicity only if the speaker's apprehension of the sense is a *direct* and *unmediated* one, intercepted by no guise or mode of presentation of any kind. Otherwise, the postulation of the realm of sense, just

¹Frege 1918: 34f.

²*Ibid.*, 35, note 1.

³See e.g. Dennett 1982, Dummett 1981, Field 1978, Fodor 1975, Harman 1977, Loar 1981, and Schiffer 1987.

like that of the mere existence of a mind-independent outer world, cannot in itself guarantee the desired objectivity and publicity.

As already noted, senses are not psychological entities, but the grasping of them is a mental process. Although it is highly controversial what this process consists in, it is quite clear that, given the cognitive nature of Fregean senses, Frege's demand that senses be graspable means that they make a difference to the cognitive content of one's thought or cognitive state of one's mind. In grasping the sense expressed by an expression referring to a certain object, the sense grasped reflects the cognitive and mental state of the speaker in respect of his thinking of the object, or, in other words, the 'mode' in which the speaker thinks of the object.

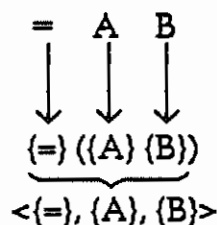
We have seen the epistemic and cognitive character of the notion of a sense, and also the unmediatedness and intimacy of the graspability of senses by the mind. From this flows a Fregean conception of *the nature of propositions*, as propositions are just senses of sentences. According to this conception, propositions are *epistemically intimate* entities. They can be apprehended directly, and they reflect the mental structure of the apprehending mind.

3.2. Russell's Conception

It is interesting to note that there is a similar sort of epistemic intimacy in Russell's conception of propositions,¹ even though the Russellian semantics of singular reference is vastly different from the Fregean one. Let us take a brief look at the differences first.

¹As Barwise and Etchemendy put it, 'it would be foolhardy to claim that Russell held any *single* view of propositions throughout his philosophical career.' (1987: 27.) The conception I am ascribing to Russell is the one linked with his earlier theories of meaning and truth, as seen mainly in Russell 1904, 1906, 1912 and 1917. Even in these works, changes of emphasis and doctrine can still be detected. But there is no need to go into the niceties here.

[1] Like Frege, Russell predicates truth and falsehood of propositions. But unlike Frege, he offered us a much simpler picture of reference. On his account of names (not ordinary names, but 'logically proper names', which are the only 'genuine names' according to Russell) the *meaning* of a name is identified with the object it denotes, rather than construed as something, like the Fregean sense, through which the referent of the name is determined. Reference, on this view, is a *direct* relation; the route through sense is eliminated. There is no *sense* on top of *reference*. Together with another of Russell's contentions, namely that a proposition is identified with the meaning of a (declarative) sentence, this identification of the meaning of a name with its referent entails that, if the sentence contains a name, the proposition must contain the object the name refers to. So if, for instance, 'A' and 'B' are names, the following diagram represents the Russellian semantics for the sentence 'A = B'¹



Here, the downward arrow represent the denoting relation. {A}, for instance, should be understood as the denotation of 'A'. The proposition expressed by the sentence 'A = B' is simply the proposition denoted by it. To this proposition 'A' and 'B' contribute what they denote, i.e. {A} and {B} respectively. The propositional contribution of '=' is the concept of identical relation. The proposition, thus, has as its constituents {A}, {B} and {=}. These constituents are combined, by the *application* of functions to arguments (such applications are represented by the parentheses in the diagram), into a structured entity, which we may represent as the ordered triple $\langle \{=\}, \{A\}, \{B\} \rangle$. So, contrary to Frege's

¹The diagram is modelled on those used by Parsons 1981 and Linsky 1983.

view, the proposition expressed by such a sentence as 'A = B' is a *singular proposition* with concrete individuals as constituents.

However, Russell shares with Frege the orthodox conception of propositions in thinking that propositions should be so intimately related to our epistemic capacity to apprehend them that we can 'grasp' them directly. To see how this is so, we may look at some important features of Russell's philosophy.

[2] Adherence to Ockham's Razor is perhaps one of the most important features of Russell's philosophy. He believes that in any type of inquiry, pursuit of 'minimum vocabularies' is of cardinal importance. Finding the minimum vocabularies will enable us to avoid postulating metaphysically dubious entities. Thus in carrying out an inquiry one should try to identify the minimum primitive elements—logical atoms—and decompose the complex whole into them. Adherence to this principle led him to draw the important distinction between *knowledge by acquaintance*, and *knowledge by description*. We have the former kind of knowledge, Russell tells us, only with something 'of which we are directly aware, without intermediary of any process of inference or any knowledge of truth';¹ while to have the latter kind of knowledge of an object is to know that there is one object, and no more, having a certain property; and 'it will generally be implied that we do not have knowledge of the same object by acquaintance'.²

The distinction between *knowledge by acquaintance* and *knowledge by description* applies to both of the two basic notions in Russell's ontology — particulars (concrete individuals) and universals (abstract entities). Particulars that can be known by acquaintance are percepts (or sense-data), private entities given through sense perception, and mental states. We also have knowledge by

¹Russell 1912: 73-74.

²*Ibid.*, 82-83.

acquaintance of simple universals, which Russell also calls 'concepts'. Examples of objects known by description are the author of *Hamlet* (concrete entity) and the smallest prime number (universal). Now, to determine whether a description does in fact apply to some actual entity, Russell claims, we must at some point come down to the level of acquaintance, where we can make direct contact with what actually exists.

The ontological dualism of *particular-universal* and the epistemological distinction between *knowledge by acquaintance* and *knowledge by description* are linked by Russell's theory of meaning. For Russell, a philosophically satisfactory language will have a *formal* component and an *informal* component; the basis of the former being provided by the logic of *Principia Mathematica*, and the latter consisting of singular expressions and general terms (or predicates). As to propositions, there are atomic propositions, which are logically independent from one another and are expressed by sentences composed of unanalysable proper names and predicates. These simple and unanalysable terms in the (non-formal) vocabulary, according to the requirement of Ockham's Razor, must denote actual entities. Accordingly, genuine names, or, as Russell calls them, 'logically proper names', which can occur in an atomic sentence of any form, are simple and unanalysable singular expressions, which denote particulars knowable by acquaintance, and are the names' contribution to the propositions expressed by the sentences containing them. The other kind of constituents of atomic propositions are unanalysable 'universals' or 'concepts', of which we also have knowledge by acquaintance. Ordinary names are treated as truncated descriptions, rather than genuine names.

We have discussed the notion of *epistemic intimacy* as a central feature of Frege's conception of the nature of propositions. Now it should not be difficult to see that the same feature is also characteristic of Russell's conception. According to him, atomic sentences are formed by unanalysable names and

predicates, and express atomic propositions, which are composed *only* of things that can be known by acquaintance. Things we can be acquainted with, such as percepts, according to Russell, we can be acquainted with *directly*, without intermediation of any kind. They are epistemologically primitive. So atomic propositions are epistemically intimate. This feature of intimacy must be shared by non-atomic propositions too. For logical analysis of a complex term will reveal how a meaningful sentence containing the term is logically constructed out of sentences composed of unanalysable proper names and predicates. Therefore, as Russell says, ultimately 'every proposition which we can understand must be composed of constituents with which we are acquainted.'¹

This is, then, how one will see the nature of propositions if one thinks of propositions in accordance with the views of Russell or Frege: A closed indicative sentence expresses a proposition which is either (for Frege) made up entirely of conceptual entities residing in a mind-independent 'third realm', or (for Russell) analysable into simple propositions consisting of concepts and particulars known by acquaintance. To identify or recognize fully a proposition requires nothing more than apprehending it or being acquainted with it. And the apprehension (or acquaintance) is unmediated and direct: there is no incomplete, or one-sided, or skin-deep, apprehension of a proposition. This is what Salmon calls 'the orthodox conception'.

4. The Failure of Salmon's Criticism of Kripke's Thesis

4.1. Salmon's Unorthodox Conception

What distinguishes Salmon's unorthodox account of propositions from the orthodox one is that, on his account, a proposition need not be epistemically intimate and directly graspable in the sense in which Fregean general

¹Russell 1917: 219

propositions or Russellian atomic propositions are. For in Salmon's view an ordinary name refers to an individual in the way a Russellian logically proper name does: the ordinary name expresses a singular proposition that contains as one of its constituents the individual referred to. One can give names to almost everything, from abstract entities, like sets and numbers, to concrete objects, like a star and Mr. Jones. Certainly such a concrete object as a star or a person is not directly graspable in the sense in which Fregean senses or sense percepts are. Singular propositions expressed by sentences containing names referring to these objects are therefore not graspable directly.

This lack of direct graspability or epistemic intimacy in the case of singular propositions is central in Salmon's solution of Frege's puzzle. Things like Venus, Mr. Jones, etc., are not directly graspable, so there can be different ways in which they can be taken or grasped because they have *appearances* and can *take on guises* and therefore can be presented to us in various ways. Take Salmon's example of Superman and his woman-friend Lois Lane. Superman is presented to Lois Lane in two different guises: as a reporter called 'Clark Kent', and as the defender of truth, justice, and the American way, named 'Superman'. Therefore, she fails to recognise the mild-mannered reporter when he has changed his appearance (or one may say, she recognises him but is unaware that he is the one and the same person). It is similar in Orcutt's case, where there are two different ways he encounters Venus. It follows that there are many ways in which one can grasp those singular propositions in which such concrete objects as a star or a person occur as constituents. Accordingly, there is also such a thing as *failing to recognize a proposition*—we may fail to recognize a proposition in exactly the same way that 'a subject can fail to recognize some individual because of a change in its objective or subjective appearance'.¹ This enables Salmon to claim that Orcutt can assent to the common singular proposition

¹Salmon 1986: 107.

expressed by 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' when it is taken by him in one way, without assenting to it when it is taken in some other way, a claim which is essential to his solving Frege's puzzle by utilizing the quantificational analysis of 'believe' (i.e (B)) in terms of the BEL relation.

Denying that there is a notion of failing to recognize a proposition, Salmon points out, is the 'natural reaction of one who is thinking of propositions in accordance with the orthodox theory, that is, in accordance with the theories of Frege and Russell'. But this is, Salmon tells us, because one is 'in the grip of a faulty and misleading picture'¹—that is, the orthodox picture that propositions are made up of epistemically intimate entities which we cannot fail to grasp directly.

4.2. *A Priority and Ways of Grasping a Proposition*

[1] Bearing in mind that Salmon holds such a view, let us look again at what he says about the epistemic status of 'Hesperus is Phosphorus'. On the singular propositions account, the proposition expressed by 'Hesperus is Phosphorus' can be thought of as an ordered triple, namely the triple A , where²

$$A = \langle =, V, V \rangle.$$

(Here '=' stands for the attribute of identity, and V represents the planet Venus.) Salmon thinks that this proposition is *a priori*. And according to (C), this means that the proposition can be known solely on the basis of reflection on its components, that is, Venus and the attribute (or concept) of identity.

There is indeed an air of truth about saying that A has the property of being knowable solely on the basis of reflection on its components, especially for *those who are in the grip of the orthodox picture of propositions*. If

¹*Ibid.*, 107.

²As there are other conventions for representing singular propositions, this proposition may also be represented as, e.g. ' $\langle \langle V, V \rangle, \text{IDENTITY} \rangle$ ' (Almog 1986: 234) and ' $\langle V, =, V \rangle$ ' (Linsky 1983: 15).

propositions are just as the orthodox view says they are, it is certainly hard to see how, after (sufficient) reflection on the components of a proposition having the form ' $\langle =, x, x \rangle$ ', we could fail to know its truth. A proposition must be, on the orthodox conception, constituted by entities directly graspable; if it has the mentioned form, then, how could one, upon grasping it and reflecting sufficiently on it, fail to see that the second component and the third component are one and the same thing, and thus that the proposition says about some object that it is identical with itself? So any proposition having the same form as *A* must be *a priori* according to the orthodox view. However, *A* is clearly not a 'proposition' in the orthodox view. This is because Venus, being an ordinary concrete object, is not qualified for being a 'propositional component', which on the orthodox view has to be either an intensional object or something like sense percepts.

The situation is this: from the orthodox point of view there seems to be a compelling reason to think that propositions with the form ' $\langle =, x, x \rangle$ ' have to be *a priori*. From the same point of view, however, *A* cannot possibly be a proposition. But, according to Salmon's unorthodox account, *A* is a proposition and is a singular one.

[2] Now the question is: having rejected the orthodox view, can Salmon convince us that every proposition having the form ' $\langle =, x, x \rangle$ ' is *a priori* according to (C)? That is, can he convince us that it can in principle be known solely on the basis of reflection on its components?

Perhaps he could, if he construed 'reflection' as some kind of 'direct reflection' such that when we reflect on the components of a proposition, we do so only in some direct manner, with "our eyes of reflection", so to speak, staring right at the components and seeing through to their souls, bypassing all "appearances" or "guises". For there seems to be no reason at all to think that we need to have recourse to sensory experience in order to know a proposition

having the form ' $\langle =, x, x \rangle$ ' to be true, if we can directly reflect on each of its components and thus can 'see' it as having that form.

Indeed, the notion of 'reflection' involved in (C) seems most plausibly glossed as 'direct reflection' or something along that line, *if* one thinks of a proposition in accordance with the orthodox conception. There is no reason to think that one's reflection needs to be indirect if the components of a proposition are epistemically intimate and directly accessible to the reflecting subject. But it is doubtful, at least in the cases of singular propositions like *A*, that there is a place for the notion of direct reflection in Salmon's unorthodox scheme of things. The reason is obvious. Salmon has told us that Venus is not something that can be grasped directly, in the sense in which propositions in the orthodox view are. One encounters Venus in one way or another, so there are various ways in which one can take *A*. Now, given such an idea on his part, it is clearly inappropriate for Salmon to speak of *directly reflecting* on such a proposition as *A*, which contains Venus as one of its components. The notion of direct reflection carries the orthodox suggestion that there is some kind of intimate epistemic relation between the mind and the propositional components reflected on. Such a notion will not find a comfortable place in Salmon's unorthodox conception.

[3] There is another way of spelling out 'reflection on a proposition's components' which seems more in line with Salmon's unorthodox view. The notion may be spelt out in such a way that when the proposition involved is a singular proposition, the reflection will be *indirect*, by way of what Salmon calls 'guises' or 'ways of grasping'. But then it is hard to see how Salmon can convince us that *A* is 'in principle knowable solely on the basis of reflection on the components involved'. Suppose *M* is the way in which Orcutt would take *A* were it presented to him at a particular time through the sentence 'Hesperus is Phosphorus', and *N* is the way in which he would take the same proposition

were it presented to him at a particular time through the sentence 'Hesperus is Hesperus'.¹ Then can Orcutt know the truth of *A* solely by indirect reflection on the proposition by way of *M*? I cannot see how he can. Furthermore if we suppose that he can, it is difficult *not* to think that Orcutt would assent inwardly to the proposition when it is grasped by means of *M* as readily as he would assent inwardly to the same proposition when it is grasped by means of *N*. But one certainly cannot think so while accepting Salmon's solution to Frege's Puzzle.²

Perhaps Salmon has some very different reading of (Cb). Here is a conjecture.³ Presumably Orcutt can know the truth of *A* solely by indirect reflection on the proposition by way of *N*, though not by way of *M*. So it might be the case that Salmon has in mind some reading of 'Cb' which he thinks would entitle him to claim that *A* is *a priori* for some reason like this: *there is some way-of-grasping x such that one can know A solely on the basis of indirect reflection on A via x*. It is *not* clear, however, that such a reading, which

¹I have to be quite vague as to what *M* and *N* consist in because Salmon has told us very little about the nature of ways-of-grasping. He is content with such vague characterization as 'In [cases like the 'Hesperus'-'Phosphorus' and the 'Superman'-'Clark Kent' ones], the guise or appearance by means of which the believer would be familiar with a proposition at a particular time *t* were it presented to him or her through a particular sentence is a function of the believer and the sentence. Let us call this function f_t ' (1986: 117). So here I am content with saying no more than that *M* is f_t (Orcutt, 'Hesperus is Phosphorus') and *N* is f_t (Orcutt, 'Hesperus is Hesperus').

²I hasten to add a point here. I assume that the qualifying phrase 'in principle' in (C), as is often the case in other characterizations of '*a priori*', is employed to accommodate those cases which involve, for instance, a lack of logicity or failing to 'try hard enough' on the part of the thinking subject, or the limitation upon the subject's ability to grasp complex statements or proofs, as in certain notorious cases concerning the epistemological status of complex mathematical truths or proofs. (How to construe 'in principle' in the last kind of case is itself a difficult question. But we need not dwell on this given that we are considering simple identity statements. See Kripke's discussions on Goldbach's conjecture and on the modalities involved in the characterization of '*a priori*', Kripke 1972: 34-38.) Given such an understanding of 'in principle' and the fact that *A* has a simple structure, to say that *A* is in principle knowable solely on the basis of reflection is to say that, provided that one has the modicum of logicity needed and has reflected 'hard enough' on *A*, one cannot fail to know *A*, which, as just shown, is surely *not* the case when the reflection is an 'indirect' one.

³Although this conjecture, as one may have noticed, is inspired by Salmon's analysis of believing, i.e., (B), which involves quantification over ways-of-grasping, it must be emphasized that this is a pure conjecture without any textual support.

involves *existential quantification over ways of grasping*, would *not* run the risk of trivialising '*a priori*': a proposition *q* expressed by, say, the true sentence 'Orcutt is at the place *p* at time *t*', might turn out to be *a priori* according to this reading. For arguably there is some way-of-grasping *y*—for instance, the way in which Orcutt would take the proposition were it presented to him through the sentence 'I am here now', as used in an appropriate context, viz. the context in which he himself is the speaker—such that Orcutt can know the proposition solely on the basis of indirect reflection on *q* *via y*.¹ Accordingly, on this reading of (Cb), the proposition expressed by 'Orcutt is at the place *p* at time *t*' will emerge as *a priori*, and therefore, given (Ca), so will the sentence. At any rate, there seems to be no way to substantiate this conjecture without reading too much into (C). So I shall not dwell on this.

[4] Hence, having offered (C) and having claimed that 'Hesperus is Phosphorus' is *a priori* (according to (C)), Salmon finds himself in a very difficult situation. If he glosses (C) in terms of a direct notion of reflection, he might be able to claim that propositions of the form $\langle =, x, x \rangle$ must be *a priori*. But such a gloss, though quite natural for one holding the orthodox view, is not compatible with Salmon's unorthodox conception of propositions. Alternatively, (at least when considering singular propositions) Salmon might spell out 'reflection' as a kind of indirect notion in terms of 'ways of grasping'. (In fact, this move would be quite in line with his view of propositions.) But with (C) so spelt out, it is difficult to see how he could convince us that the proposition in question (namely the triple *A*) is *a priori*.

¹Indeed, Salmon agrees with Kripke that 'I am here now' is *a priori* and contingent (1986: 180). Presumably, Salmon's reason is that 'I am here now' is, as Kaplan argues, logically valid. He notes: 'Kaplan has argued convincingly that certain indexical sentences, e.g. "I exist" and "I am here now", are logically valid, since, no matter what the range of possible contexts, they are true with respect to every possible context.' (1986: 177, note 1.)

Salmon appears to have given us a reason why *A* is *a priori* but in fact he has not. We have seen that there is no way (short of my conjecture, with its risk of trivialization) for Salmon to spell out his characterization (C)—in particular, the notion of reflection—such that (i) the characterization will be in line with his unorthodox conception, and (ii) the proposition *A* will turn out to be *a priori* according to (C).

Salmon espouses the idea that the singular proposition *A* is something which we can grasp only by one means or another, and he utilizes this idea for solving Frege's puzzle; but when it comes to the question of *a priority* he argues as if the proposition has suddenly become something which can be grasped directly and can be, in his words, 'seen right to the soul' by our faculty of reflection, just like any proposition residing in the Fregean's 'third realm'. His treatment of the purported *a priority* of *A* constitutes an irony of *Frege's Puzzle*.

[5] The source of Salmon's trouble, as should be clear now, is the characterization (C), which, perhaps because it is so in line with the traditional conception of *a priority*, he takes for granted as an acceptable characterization. From the point of view of the relative view of *a priori* propositions advanced in Chapter 3, (C) is not an acceptable characterization. (Ca) is incorrect, because it takes '*a priori*' as applying to propositions *simpliciter*. (Note: *not* 'because it takes "*a priori*" as applying primarily, rather than derivatively, to propositions'. What is exactly at issue here is the '*simpliciter/relative*' distinction, not the '*primary/derivative*' distinction.) Thus (Cb), which characterizes *a priority* as if it applies to propositions *simpliciter*, is also incorrect. It appears otherwise when one holds the orthodox conception of propositions; but as we have noted in Chapter 3, the problem with (Ca) is subtly concealed by the identification of propositions and meanings, which is a mark of the orthodox conception. Furthermore, even if it is true that (C) is acceptable when backed by an orthodox conception of propositions, this is no solace to the upholders of (C) unless they

can resist the challenges from the theory of direct reference against the orthodox conception.

On the other hand, given Salmon's unorthodox conception of propositions and his account of ways of grasping a proposition, it is clear that 'ways of grasping' are relevant to the question of whether a singular proposition can be known to be true solely on the basis of reflection. Thus a natural move for Salmon to take is to give up (Ca) and define '*a priori*' as *not* applying to propositions in a *simpliciter* sense but applying to them relative to ways of grasping. And (Cb) will accordingly be defined as something like this: a proposition *p* is *a priori* relative to *x* (where *x* is a way of grasping *p*) iff *p* is in principle knowable solely on the basis of reflection via *x* without recourse to sensory experience.¹

Although Salmon is, as noted, extremely vague about what 'ways of grasping' amount to, he clearly thinks of a way-of-grasping—at least in such a case as the way Orcutt would take *A* were it presented to him through a sentence such as 'Hesperus is Phosphorus'—as a function of the believer and the sentence. Now if Salmon is to take the natural move just suggested, i.e. relativizing '*a priori* proposition' to ways of grasping, then it seems that something akin to our sentence-relative view turns out to be just what his theory points to.

4.3. *Objections and Replies*

[1] Perhaps one might, on behalf of Salmon, object to my previous criticism on the following grounds: "The foregoing criticism fails to take into consideration the fact that Salmon's theory of semantic value is also a theory of information. According to Salmon, *the informational is identified with the propositional*: the information content, i.e the cognitive content, encoded by

¹Since Salmon tells us very little about the nature of ways of grasping, I can only suggest a *rough* recast of (Cb) here.

'Hesperus is Phosphorus' is just the proposition it expresses. 'A *a priori*' is a cognitive-epistemic notion. Therefore the ways in which *A* is grasped (or, in general, the modes of access to *A*) are not relevant to the epistemic status (*a priori* or *a posteriori*) of *A* and of the sentences expressing *A*."

Reply. I cannot see why the theory of singular propositions must identify the propositional with the informational. As we have seen, by making explicit the idea that the referent of a directly referential term *enters into* the truth-conditions of the containing sentence, the theory of singular propositions give nice expression to the direct theorist's views on reference and truth-conditions for directly referential terms. It is not clear, however, that such an account *by itself* is able to sustain Salmon's stance on informational and cognitive issues.¹ On the theory of singular propositions, the corresponding propositional component of a directly referential term cannot be a Fregean sense, which is a conflation of sense₄, sense₅, and sense₆ (using Salmon's categorization). For it is clear that all these senses cannot be identical with the referent. It need not, however, be a tenet of the theory of singular propositions that the referent must also be the sense₆ (the information value).

While using 'singular proposition' and 'information' interchangeably in the case of sentences containing names, Salmon, however, has not given us much further explication of his use of 'information value' (or 'information content'). He makes life too easy for himself by relying so heavily on the intuitive thesis that the 'information content' of 'Hesperus is Phosphorus' is the singular proposition it expresses. In fact, I think a difficulty for Salmon's account is to explain how one can maintain such a notion of information value and at the same time explain Orcutt's problem in terms of 'different ways of grasping' the same proposition. The notion of 'different ways of grasping the same proposition' presumably explains our belief attribution and the psychology of

¹For a similar remark, see Smith 1988: 137. Smith is more sceptical; he thinks that the direct theory itself is unable to sustain Salmon's stance.

Orcutt. By denying that the modes of access to a proposition are relevant to the 'information content' of the sentence expressing the proposition, Salmon treats the notion of 'information' as if it has nothing to do with the psychology and explanation of a person's behaviour in terms of beliefs and desires. He owes us an explanation of why, if one holds the theory of singular propositions, one must also accept such a construal of 'information'. Thus, it will not really strengthen Salmon's position on Kripke's Thesis to argue that 'ways of grasping' are irrelevant to the issue of the epistemic status of *A* on the grounds that they are, according to Salmon's construal of 'information', not integral to the notion of *information value*.

[2] Here is another objection to our view: "Well, whether you agree with Salmon's construal of 'information' or not, it's clear that on his account propositions are objects of knowledge and belief: 'believing' is a two-term relation between a believer and a proposition. Now given that propositions are objects of knowledge and belief, Salmon is right in insisting that 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' must have the same epistemic status, as they express the same singular proposition."

Reply. It is true that one of the attributes of propositions, according to traditional thinking at least, is that they are objects of attitudes and mental acts. What underlies this idea is a dyadic-treatment of such notions as 'believing', 'judging', 'thinking', 'knowledge', etc. A classical way of expressing this is to say that our thinking and acts of consciousness are *directed to*, or *about* something that are their immediate objects. Or, to put it another way, it is the idea that the mental acts signified by such verbs as 'believe', 'judge' and the like involve a binary relation between the subject's mind and an object, designated by the 'that-clauses' complementing the verbs. It can be seen that the entities regarded as propositions on the orthodox conception play the role of being such objects very well, particularly in regard to believing and knowing. (In fact, to supply entities

as objects of thinking, attitudes and mental acts is one of the motivations of the classical theory of propositions. Note the use of the very term '*propositional attitudes*'.) This is because they are epistemically intimate entities that the mind 'apprehends' or 'is acquainted with' in a direct sense, and thus are the immediate objects of thinking.

However, given the differences between the orthodox view and the unorthodox view we have noted above, I think that those who hold the unorthodox view need to rethink the question whether propositions should be, or in what sense propositions may be, regarded as 'objects of knowledge and belief'.

Suppose I say, 'John is wise.' One might say that the *object* of my comment is John, in the sense that the comment is *about* John. Or, when you and I both say to ourselves 'John is wise', it may be said that our thoughts are *about* or *directed to* John. Similarly, when I believe a singular proposition that contains an individual, say, John, 'the object of my belief' may be said to be that singular proposition, because John, one of the components of the proposition, is in a sense what my belief is *about*.

But Salmon tells us that we grasp a singular proposition by one means or another. If he is right, the relation between my mind and the object of my belief is a *mediated* one. So the above sense of 'about', in which a singular proposition may be said to be an object of belief, is very different from the sense of 'about' in which an orthodox theorist, e.g. a Fregean, would say that the belief that Socrates is wise is 'about' the Thought expressed by 'Socrates is wise'. In the Fregean view, the above sense in which my belief is 'directed to' John is actually the product of two things—the direct apprehension of a propositional component (sense) and this component's being a mode of presentation of John.

Should propositions, then, *really* be regarded as objects of belief and knowledge, if one espouses the unorthodox view and Salmon's analysis of believing? Or should we rather say that the objects of propositional attitudes are

what Salmon calls 'ways of grasping a proposition'? Or perhaps pairs consisting of a singular proposition and a way of grasping it? Well, for our purpose I think we need not worry about what we should call 'objects of propositional attitudes'. The important thing here is to recognize that the crucial notion in Salmon's analysis of the two-term relation 'A believes p' is a 'mediated relation' to propositions (i.e. BEL), and that he holds an unorthodox conception of propositions. So even if we grant that, from the traditional point of view, it is plausible to claim that, since propositions are objects of belief and knowledge, the epistemic status of a sentence is determined by the proposition; it does not follow that, on Salmon's accounts of singular propositions and mediated relations to propositions, the same claim is equally plausible.

[3] In this connection it is also worth noting the ubiquity of the notion of 'mediated relations to propositions'. As far as I know, in all recent accounts of propositional attitudes by direct theorists espousing singular propositions, there is some 'mode of access' or other which is invoked as *mediator*, by means of which one is 'given access' to a proposition. For Kaplan, they are *characters*, for John Perry, *roles*, for Scott Soames and for Mark Richard, sentences, for Fitch, *content of cognitive states*, and for Salmon, ways of grasping.¹ They all play a role in regard to propositions very much like that played by the Fregean's 'modes of presentation' in regard to objects. One might, at least initially, find this a bit surprising, considering the anti-Fregeanism in the semantic views held by these philosophers. But the feeling subsides when one notices that the concept of 'mode of presentation' is motivated in part by Frege's puzzle about issues of the cognitive status of identity statements. The concept remains a very powerful theoretical tool for dealing with the issue. If one also thinks of the fact that the kind of thing (e.g., Venus) which a Fregean sense provides a mode of

¹See Fitch 1987: Chapter 4, Perry 1977 and 1979, Richard 1989, and Soames 1989: 593. Graham Oppy, who himself develops a 'mental files' account of mediated relations to propositional components (Oppy 1989), drew my attention to Mark Richard's work.

presentation of can be part of a proposition according to the theory of singular propositions, then one might not feel surprised at all, and might even think that the approach in terms of 'mediated relations to propositions' is the one the singular proposition theorists should take, or at least explore.¹

But then it would be difficult to see how, in considering the epistemic status of a sentence expressing a singular proposition, one could treat 'modes of access to propositions' as irrelevant. But that is what Salmon does in the case of 'Hesperus is Phosphorus', as he gives no consideration to 'ways of grasping'—his version of 'modes of access to propositions'—in passing his verdict on the epistemic status of the sentence. Indeed, 'ways of grasping', perhaps one of the most important pieces of terminology in *Frege's Puzzle*, is not mentioned even once in his entire discussion of Kripke's Thesis.

In brief, I have tried to make these two points:

(1) Simply saying that *propositions are the objects of knowledge and belief* does not constitute any good reason for insisting that, since 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' express the same singular proposition', they must have the same epistemic status; although it might be a good reason to say so for any pair of sentences expressing the same proposition conceived in the orthodox way.

(2) Whether Salmon's analysis suggests that propositions be called 'objects of knowledge and belief' or not, his verdict on the epistemic status of 'Hesperus is Phosphorus' is inconsistent with his very employment of the notion of 'ways of grasping' in solving cognitive issues.

¹Of course one should not therefore think that Salmon's (or others') exploitation of the general concept of 'mode of access' is just a straightforward exercise of saying about propositions what Frege says about other objects such as Venus. Nor should one think that the employment of the notion of a mediated relation to propositions by singular propositions theorists is an uncontroversial move.

4.4. A Final Remark

I have argued that, according to the relative view advanced in Chapter 3, Kripke's Thesis is correct. But I also pointed out earlier that, given his theory of singular propositions and his account of ways of grasping a proposition, a natural move for Salmon to take is to embrace the kind of relative view of *a priori* that I have advanced. Thus, I want to bring this essay to an end by pointing out this: contrary to what Salmon thinks, the most recent development of the semantics of direct reference has given further reasons for us to hold Kripke's Thesis, if we *assume* that the ubiquity of the notion of 'mediated relations to a proposition' is indicative of its indispensability, or suitability in dealing with the cognitive issues for those advocating the theory of singular propositions. This assumption might prove wrong, but as far as I know there is so far no other approach to the cognitive issues of singular propositions which is both plausible and entails the falsity or implausibility of Kripke's Thesis. Our final conclusion: There is no reason to suppose that one must either give up talk about propositions or give up Kripke's Thesis.

Appendix

Recently, in 'How *Not* to be a Millian Heir'¹ Salmon responds to the criticism I raise against him in the article '*A Priority and Ways of Grasping a Proposition*',² which is an earlier and simpler version of the Chapter 5: §2-§4 (but not including §4.3). In this appendix, I shall comment briefly on the main points of his reply.

To start with, Salmon says that I have misinterpreted his characterization of *a priori*. He proceeds to clarify his characterization in the following way:

Instead, it [Salmon's characterization] characterizes a kind of knowledge in terms of the *necessary* conditions for its attainment. The phrase 'on the basis of' does not mean merely the same as 'by means of'; it pertains to epistemic *justification*. A piece of knowledge is *a priori* if sensory experience need not play a certain key role in its justification. Exactly what this special role is may be extremely difficult to specify. If sensory experience can play no role at all, beyond merely enabling one to grasp the proposition in question (say, by giving one the requisite concepts), the proposition qualifies as *a priori*. This is what I claim for the singular proposition about Venus that it is it. It is a truth of logic. It may be that in order to know this logical truth without recourse to experience one must take it a certain way (e.g. the way one might take it were it presented through

¹Salmon 1990. The term 'Millianism', derived from Kripke 1979, is used by Salmon to refer to 'the thesis that the contribution made by an ordinary name to securing the information content of, or the proposition expressed by, a declarative sentence in which the name occurs (outside of the scope of such non-extensional operators as quotation marks), as the sentence is used in a possible context, is simply the name's referent (bearer) in the given use.' (1990: 1.)

²Wong 1990.

the sentence 'Hesperus is Phosphorus'). One can know the proposition on the basis of reflection (including the faculty of reason) alone by taking it the way one would if one *stipulated* that one is considering a certain trivial truism—as in "Consider the fact about Venus that it is it." That fact is thus knowable without recourse to sensory experience.

This, I think, is basically just another way of denying the epistemic relevance of the notion of 'ways of grasping', and of asserting Salmon's own quite idiosyncratic use of 'information'. We have seen, in §4.3, that this is a disquieting feature of Salmon's view, especially given that Salmon's 'ways of grasping'—and indeed 'mediated relations to singular propositions' for the 'singular propositions'-theorists in general—is in a sense a legacy of Frege's 'mode of presentation'.

I am not saying that the notion of epistemic justification is not relevant to the issue here. But I don't think it helps much just to bring in the notion without relating it sufficiently to the fact that there are in question two very different conceptions of propositions. Surely, given the orthodox theorist's highly cognitive notion of propositions, it can be argued that, even admitting that sensory experience might be necessary in the process of understanding or grasping what is expressed by a sentence (for instance, the sensory experience involved in language learning in general, or in acquiring a certain concept in particular), such a role played by sensory experience is not relevant to the epistemic status of the proposition expressed. But it is not clear whether, in regard to the epistemic relevance of the sensory experience that may be involved in the ways by means of which a proposition can be grasped, an unorthodox theorist like Salmon should reason in a similar way, especially given the difference between the orthodox view and Salmon's view in regard to the cognitive nature of propositions. At any rate he needs to say more, I think, about 'epistemic justification' than simply throwing in the notion, if his answer is to be convincing.

Salmon continues:

Wong anticipates a reply along these lines. He responds that it is not clear that such a reply does not risk trivializing the notion of *a priori*, on the grounds that even a sentence like 'Peter is at location *l* at time *t*' might emerge as *a priori*, since its content can be expressible by the arguably logically true sentence 'I am here now'.

This evidently refers to the conjecture I made in the article concerning Salmon's reading of (Cb), one of the two central theses in the characterization he gives.¹ (The conjecture is stated in substantially the same way as the last paragraph of Chapter 5: §4.2, [3]). According to my conjecture, the construal of '*a priori*' that Salmon has in mind might be this: a singular proposition, e.g. *A* (i.e. $\langle =, Venus, Venus \rangle$) is *a priori* just in case there is some way-of-grasping *x* such that one can know *A* solely on the basis of *indirect* reflection on it via *x*. Given this construal, Salmon would be able to say that *A* is *a priori*. As I have noted, this conjecture has no textual support, and was only inspired by Salmon's own analysis of 'belief'. It is quite surprising that it turns out to be 'along the same lines' as Salmon's (above-quoted) clarification of his intention. At any rate, if the construal in my conjecture is not far from what Salmon has in mind, then—quite contrary to what we saw in the first passage quoted—it seems to me quite clear that (regardless of whether *A* is *a priori* or not) ways-of-grasping are relevant to the justification of *a priori* knowledge, at least in some interesting sense. For an 'indirect reflection'—*the basis* on which a proposition is known to be *a priori*, if it is *a priori*—is *indirect* precisely because it must involve the mediation of ways of grasping. However, I shall not dwell on this point because Salmon's clarification is, unfortunately, too sketchy for us to tell the extent to which my construal, in my conjecture, and Salmon's are along the same lines.

So, let us proceed to the matter of 'trivializing the notion of *a priori*', assuming that my construal is *very* close to what Salmon has in mind.

¹For (Cb), see §2.4 of Chapter 5 above.

Recall that, according to my construal, 'Peter is at l at t' ' would emerge as *a priori* because the proposition expressed by 'Peter is at l at t' ' is also expressible by 'I am here now', and the latter sentence is, at least according to the Kaplanian semantics for indexicals, logically true (because the sentence will be true in all contexts). Concerning this, Salmon makes the following points.

First, he says that although *Frege's Puzzle* allows that the sentence 'I am here now' may be *a priori* because it is logically true, more recently

I have become convinced that the particular sentence 'I am here now', in its normal use, is not logically true, and that this is demonstrated by Gerald Vision's example of the standard telephone answering-machine message: 'I am not here now'. I believe this example is best thought of as a genuine case of *assertion in absentia*, in which the agent of the context is (just as he or she says) not present at the context of his or her speech act (and indeed, is generally not even aware at the time of performing it).

Vision's example does not strike me as a good one for demonstrating the 'normal use' of 'I am here now'. The claim that the replay of a recorded answering-machine message constitutes a 'normal use' of 'I am not here now' in a particular context does not seem to be obvious,¹ at least not obvious enough to bear the full weight of Salmon's argument in this context. Salmon has not elaborated on Gerald Vision's example, so I shall not comment further on this.

Next, Salmon argues that, even supposing that 'I am here now' is logically true and thus *a priori*, there is no problem of 'trivializing the notion'.

Suppose I am wrong about 'I am here now'. If it is *a priori*, then so is 'Peter is at l at t' ' (provided the latter is true). But then if 'I am here now' is *a priori*, it is not at all obvious that the resulting *a priori* of 'Peter is at l at t' ' would trivialize the notion of *a priori*. Such sentences as 'Peter is 5' 9" tall', 'Mary was born in Seattle', 'Water runs downhill' etc. would remain *a posteriori*.

¹There is a recent debate, as Salmon also notes, on this sort of alleged counterexample to the alleged logical validity of 'I am here now' in the pages of *Analysis*. See Colterjohn and MacIntosh 1987, Simpson 1987, and Vision 1985 and 1987.

Salmon seems to think that, although on my construal (that is, the construal I have assumed he has in mind) 'Wong is in Room 305 at three o'clock', 'Salmon was at Princeton in 1979' are *a priori*, it will not trivialize the notion of *a priority* because it does not result in treating *all* true (declarative) sentences as *a priori*. But does a characterization of the notion need to treat *all* true (declarative) sentence as *a priori* in order to render the notion 'trivial'? I think not, but this is not very important. What is important is not how we use 'trivialize', but rather that we have here an account of *a priority* which treats sentences as 'Wong is in the Coombs Building', and 'Salmon was at Princeton in 1979' as *a priori*, and this, I think, is evidently an undesirable feature for any account of *a priority*.

Salmon goes on to note that

If it is supposed to be clear that 'I am here now' is logically true and yet 'Peter is at *l* at *t*' not *a priori* in the relevant sense, the result would be that some logically true sentences are not *a priori in the relevant sense* (and whose contents, with respect to particular contexts, are thus not themselves logical truths), and are only "*a priori*" in some alternative sense (e.g., in the sense that one can know by semantics alone that the sentence in question is true in every context). Such a result does not strike the present writer as untenable.

This exercise of shifting back and forth between senses of '*a priori*' and 'logically true' strikes the present writer as bordering on an *ad hoc* manoeuvre, and does not seem to take Salmon very far towards a convincing reply.

Furthermore, it may be noted that, if Salmon does have in mind a construal of '*a priori*' very similar to the one I put forward in my conjecture (but which I eventually rejected), then perhaps we would ask how he would define '*a posteriori*'. As we have seen, according to that construal, '*a priori*' is defined in terms of ways of grasping, indirect reflection, and existential quantification over ways of grasping. Call this the 'quantification-definition' of '*a priori*'. What, then, would a parallel definition for '*a posteriori*' be like? I didn't suggest one in

my conjecture, partly because I did not want to carry the conjecture too far without any textual support, and partly because I thought that the trivialization problem had already generated enough trouble for Salmon.

But let me now take this question up again (and I hope that what I shall say will, again, turn out to be what Salmon has in mind). There seem to be two possible quantification-definitions for '*a posteriori*' (where *p* is a singular proposition and '*x*' ranges over ways of grasping):¹

- (a) *p* is *a posteriori* iff $\sim(\exists x)$ (*p* can be known to be true on the basis of indirect reflection on *p* via *x*),

and

- (b) *p* is *a posteriori* iff $(\exists x)$ (*p* cannot be known to be true on the basis of indirect reflection on *p* via *x*),

If (a) is opted for, we have 'the problem of trivialization' because, as already explained, such propositions as expressed by 'Peter is at *l* at *t*' will turn out to be *a priori*.

What if (b) is opted for? The proposition expressed by 'Peter is at *l* at *t*' will emerge as *a posteriori*—just consider the way of grasping by means of which one would grasp the proposition in question were it presented to one through the very sentence 'Peter is at *l* at *t*'. But then the proposition expressed by 'Peter is at *l* at *t*' will turn out to be both *a posteriori* and *a priori* (as the same proposition can be grasped also by means of the way of grasping associated with 'I am here now'). Indeed, many other sentences will emerge as both *a priori* and *a posteriori*, as a result. '*A priori*' and '*a posteriori*' are, however, supposed to be contrary notions. The 'quantification-definitions' approach is fraught with problems.

¹Again, this is inspired by the fact that, apart from the notion of 'belief', Salmon also defines two other notions, 'disbelief' and 'withheld belief', in terms of BEL and quantification over ways of grasping. See Salmon 1986: 172.

From the sentence-relative view I hold, it should be clear where the source of the problems lies: although the 'quantification-definitions' approach takes into consideration the roles played by ways of grasping, it still takes '*a priori* propositions' and '*a posteriori* propositions' as absolute notions; that is, on this construal, the term '*a priori*' and '*a posteriori*' apply to propositions *simpliciter*. But these notions, as the relative view suggests, are primarily relativized notions. (Here one may recall the thesis (T) we have rejected, and also the thesis (Ca) in Salmon's characterization of *a priority*, both of which embrace the *simpliciter* notion of *a priori* propositions.)

Failing to recognise the primacy of the relativized notions, Salmon holds on to the absolute (*simpliciter*) view even though having to concede some ground:

Having said this much, I must add that I am not unsympathetic to Wong's suggestion that *a priority* and *a posteriority* might be taken as relative statuses, so that a single proposition may be said to be *a priori* relative to one way of taking it and *a posteriori* relative to another. Still relativization of the notion of *a priority* and *a posteriority* does not replace the absolute notions. A true and knowable proposition is *a priori* in the absolute sense if and only if it is *a priori* relative to some ways of taking it, and *a posteriori* in the absolute sense if and only if it is not *a priori* relative to any way of taking it. It is this absolute notion of *a priority* that corresponds to the traditional notion—which is that of a property of propositions and not that of a binary relation between propositions and ways of taking them (or a property of pairs consisting of a proposition and a way of taking the proposition)—but the relativized notions, being more discriminating, doubtless deserves their own niche in general epistemology. As Wong suggests, the relativized notions may even form the basis of a justification, of sorts, for the traditional view held by Frege (and once endorsed by Kripke) that 'Hesperus is Phosphorus' is a "*a posteriori*". [Salmon's footnote to this passage: 'Kripke has suggested such a defense. The idea may lie behind an intriguing note from Keith Donnellan, "Kripke and Putnam on Natural Kind

Terms,": ...'. Presumably Kripke's suggestion was made in conversation.--Wong] ¹

But if the discussion in Chapter 3 is on the right track, then the traditional absolute (*simpliciter*) notions and the relativized notions should not be placed side by side. The relativized notion (as I explained in that chapter) is the basic notion of 'a *priori*', and, together with an analysis of the traditional conception of the nature of propositions, it can be used to explain the traditional, *simpliciter* use of 'a *priori*' and 'a *posteriori*'. (On this, see the last two sections of Chapter 3 above.)

¹In 1987, I presented 'Necessary *A Posteriori* and Identity Statements', an earlier version of Chapter 3, to the Philosophy Society (ANU), in which I discussed the implications of Donnellan's note. The relevant note is to be found in the introductory quotation of Chapter 3.

References

Adams, Robert Merrihew

1979. 'Primitive Thisness and Primitive Identity', *Journal of Philosophy* 76, 5-26.

Almog, Joseph

1981. 'Dthis and Dthat: Indexicality Goes Beyond That', *Philosophical Studies* 39, 347-381.
1986. 'Naming without Necessity', *Journal of Philosophy* 83, 210-242.

Åqvist, L.

1973. 'Modal Logic with Subjunctive Conditionals and Dispositional Predicates', *Journal of Philosophical Logic* 2, 1-76.

Aune, Bruce

1967. 'Statements and Propositions', *Noûs* 1, 215-229.

Ayer, A. J.

1946. *Language, Truth and Logic*, 2nd ed., London, Gollancz. (1st ed. 1936.)

Bar-Hillel, Yehoshua

1954. 'Indexical Expressions', in Y. Bar-Hillel, *Aspects of Language: Essays and Lectures on Philosophy of Language, Linguistic Philosophy and Methodology of Linguistics*, Jerusalem, The Magnes Press, 1970, 69-88.

Barwise, J., and Etchemendy, J.

1987. *The Liar: An Essay on Truth and Circularity*, New York, Oxford University Press.

Barwise, J., and Perry, J.

- 1981a. 'Semantic Innocence and Uncompromising Situation', in *Midwest Studies in Philosophy Vol. 6*, P. A. French et al. (eds.) Minneapolis,

University of Minnesota, 387-404.

1981b. 'Situations and Attitudes', *Journal of Philosophy* 78, 668-691.

1983. *Situations and Attitudes*, Cambridge, Mass., A Bradford Book/MIT Press.

Baüerle, R., and Cresswell, M. J.

1989. 'Propositional Attitudes', in D. Gabbay and F. Guentner (eds.), *Handbook of Philosophical Logic, Volume IV: Topics in the Philosophy of Language*, Dordrecht, D. Reidel. 491-512.

Black, M., and Geach, P.

1952. *Translation from the Philosophical Writings of Gottlob Frege*, 3rd ed., Oxford, Basil Blackwell.

Bostock, David

1988. 'Necessary and A Priori Truth', *Mind* 97, 343-379.

Bull, R. A., and Segerberg, K.

1984. 'Basic Modal Logic', in D. Gabbay and F. Guentner (eds.), *Handbook of Philosophical Logic, Volume II: Extensions of Classical Logic*, Dordrecht, D. Reidel, 1-88.

Burge, Tyler

1977. 'Belief De Re', *Journal of Philosophy* 69, 338-362.

Carnap, Rudolf

1956. *Meaning and Necessity: A Study in Semantics and Modal Logic*, enlarged ed., Chicago, University of Chicago Press. (1st ed., 1947.)

Carruthers, P.

1984. 'Eternal Thoughts', in C. Wright (ed.), *Frege: Tradition and Influence*, Oxford, Basil Blackwell, 1-19.

Carter, W. R.

1976. 'On A Priori Contingent Truths,' *Analysis* 36, 105-106.

Carter, W. R., and Nagel, R. I.

1982. 'Constitutional Necessity and Epistemic Possibility', *Canadian Journal of Philosophy* 11, 579-590.

Cartwright, Richard

1962. 'Propositions', in R. J. Butler (ed.), *Analytical Philosophy*, first series, Oxford, Basil Blackwell, 81-103.

Casullo, A.

1977. 'Kripke on the *A Priori* and the Necessary', *Analysis* 37, 152-159.
1979. 'On the Relationship between *A Priority* and Necessary Statements', *Canadian Journal of Philosophy* 4, 283-287.
1988. 'Actuality and the *A Priori*', *Australasian Journal of Philosophy* 66, 390-402.

Church, Alonzo

1943. Review of Carnap's *Introduction to Semantics*, *Philosophical Review* 52, 298-304.

Cocchiarella, Nino B.

1984. 'Philosophical Perspectives on Quantification in Tense and Modal Logic', in D. Gabbay and F. Guenther (eds.) *Handbook of Philosophical Logic, Volume II: Extensions of Classical Logic*, Dordrecht, D. Reidel, 309-353.

Colterjohn, J., and MacIntosh, D.

1987. 'Gerald Vision and Indexicals', *Analysis* 47, 58-60.

Cresswell, M. J.

1973. *Logics and Languages*, London, Methuen.
1975. 'Hyperintensional Logic', *Studia Logica* 34, 25-38.
1980. 'Quotational Theories of Propositional Attitudes', *Journal of Philosophical Logic* 9, 17-40.
1985. *Structured Meanings: The Semantics of Propositional Attitudes*, Cambridge, Mass., A Bradford Book/MIT Press.

Davidson, D., and Hintikka, J., (eds.)

1969. *Words and Objections: Essays on the Work of W.V. Quine*. Dordrecht, D. Reidel.

Davidson, Donald

1969. 'On Saying That', in D. Davidson and J. Hintikka (eds.), *Words and Objections: Essays on the Work of W. V. Quine*, Dordrecht, D. Reidel, 158-174.

Davies, Martin

1981. *Meaning, Quantification, Necessity*, London, Routledge and Kegan Paul.

Davis, Steven (ed.)

1983. *The Causal Theories of Mind, Action, Knowledge, Memory, Perception, and Reference*, New York, Walter de Gruyter.

Dennett, Daniel C.

1982. 'Beyond Belief', in A. Woodfield (ed.), *Thought and Object*, Oxford, Oxford University Press, 1-95.

Deutsch, Harry

1989. 'On Direct Reference', in J. Almog *et al.* (eds.), *Themes From Kaplan*, Oxford, Oxford University Press, 167-195.

Devitt, M., and Sterelny, K.

1987. *Language and Reality*, Cambridge, Mass., MIT Press.

Devitt, Michael

1981. *Designation*, New York, Columbia University Press.

Donnellan, K. S.

1966. 'Reference and Definite Descriptions', *Philosophical Review* 75, 281-304.

1972. 'Proper Names and Identifying Descriptions', in D. Davidson and G. Harman (eds.), *Semantics of Natural Language*, Dordrecht, D. Reidel, 356-379.

1973. 'Substances as Individuals', *Journal of Philosophy* 70, 711-712.

1974. 'Speaking of Nothing', *Philosophical Review* 83, 3-32. (Reprinted in S. Davis (ed.) *Causal Theories of Mind, Action, Knowledge, Memory, Perception, and Reference*, New York, Walter de Gruyter, 1983, 337-360.)

1979. 'The Contingent *A Priori* and Rigid Designations', in P. A. French *et al.* (eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis, University of Minnesota Press, 45-60.

1983. 'Kripke and Putnam on Natural Kind Terms', in C. Ginet and S. Shoemaker (eds.), *Knowledge and Mind*, Oxford, Oxford University Press, 84-104.

Dummett, Michael

1981. *Frege: Philosophy of Language*, 2nd ed., London, Duckworth. (1st ed. 1973.)

Ebersole, Frank B.

1982. 'Stalking the Rigid Designator', *Philosophical Investigations* 5, 247-266.

Erwin, Edward

1974. 'Are the Notions of 'A Priori Truth' and 'Necessary Truth' Extensionally Equivalent?', *Canadian Journal of Philosophy* 3, 591-602.

Evans, Gareth

1973. 'The Causal Theory of Names', *Proceedings of the Aristotelian Society* 47, 187-208.
1979. 'Reference and Contingency', *The Monist* 62, 161-189.

Field, Hartry

1978. 'Mental Representation', *Erkenntnis* 13, 9-61.

Fine, Kit

1978. 'Model Theory for Modal Logic', *The Journal of Philosophical Logic* 6, 125-56, 277-306.
1981. 'First-Order Modal Theories I—Sets', *Noûs* 15, 177-205.
1989. 'The Problem of *De Re* Modality', in A. Almog *et al.* (eds.), *Themes From Kaplan*, Oxford, Oxford University Press, 197-272.

Fitch, G.W.

1976. 'Are There Necessary *A Posteriori* Truths?', *Philosophical Studies* 30, 234-246.
1987. *Naming and Believing*, Dordrecht, D. Reidel.

Fodor, Jerry A.

1975. *The Language of Thought*, New York, Thomas Y. Crowell.

Forbes, Graeme

1980. 'Origin and Identity', *Philosophical Studies* 37, 353-362.
1985. *The Metaphysics of Modality*, Oxford, Clarendon Press.
1987. 'Indexicals and Intensionality: A Fregean Perspective', *Philosophical Review* 96, 3-31.
- 1989a. 'Indexicals', in D. Gabbay and F. Guenther (eds.), *Handbook of*

Philosophical Logic, Volume IV: Topics in the Philosophy of Language, 463-490.

1989b. *Languages of Possibility: An Essay in Philosophical Logic*, Oxford, Basil Blackwell.

Frege, G.

1892. 'On Sense and Reference' (translated by M. Black), *Philosophical Review* 73 (1948), 207-230.

1918. 'The Thought: A Logical Inquiry' (translated by A.M. and Marcelle Quinton), in P. Strawson (ed.), *Philosophical Logic*, Oxford, Oxford University Press, 1967, 17-38. (Reprinted from *Mind* 65, 289-311.)

1950. *Foundations of Arithmetic* (translated by J.L. Austin), Oxford, Basil Blackwell.

Garson, James W.

1984. 'Quantification in Modal Logic', in D. Gabbay and F. Guentner (eds.) *Handbook of Philosophical Logic Volume II: Extensions of Classical Logic*, 249-307.

Gochet, Paul

1980. *Outline of a Nominal Theory of Propositions*, Dordrecht, D. Reidel.

Grayling, A.C.

1982. *An Introduction to Philosophical Logic*, Sussex, The Harvester Press.

Haack, Susan

1978. *Philosophy of Logics*, Cambridge, Cambridge University Press.

Hansson, Bengt

1974. 'A Program for Pragmatics', in S. Stenlund (ed.), *Logical Theory and Semantic Analysis*, Dordrecht, D. Reidel, 163-174.

Harman, Gilbert

1977. 'How to Use Propositions', *American Philosophical Quarterly*, 14, 173-176.

Hintikka, Jaakko

1961. 'Modality and Quantification', *Theoria* 27, 110-128.

1962. *Knowledge and Belief*, Ithaca, Cornell University press.

1973. *Logic, Language Games and Information*, Oxford, Clarendon Press.

1975. 'Impossible Possible Worlds Vindicated', *Journal of Philosophical Logic* 4, 475-484.

Horowitz, T.

1985. 'A Priori Truth', *Journal of Philosophy* 82, 225-239.

Hughes, G. E., and Cresswell, M. J.

1968. *An Introduction to Modal Logic*, London, Methuen.

Kamp, J. A. W.

1971. 'Formal Properties of "Now"', *Theoria* 37, 227-273.

Kanger, Stig

1957. *Provability in Logic*, Stockholm, Almqvist & Wiksell.

Kaplan, David

1969. 'Quantifying In', in D. Davidson and J. Hintikka (eds.), *Words and Objections: Essays on the Work of W. V. Quine*, Dordrecht, D. Reidel, 206-242.

1973. 'Bob and Carol and Ted and Alice', J. Hintikka *et al* (eds.) *Approaches to Natural Language*, Dordrecht, D. Reidel, 490-518.

1975. 'How to Russell a Frege-Church', in M. Loux (ed.), *The Possible and the Actual*, Ithaca, Cornell University Press, 210-224. (Reprinted from *Journal of Philosophy* 72, 716-729.)

1978. 'Dthat', in P. A. French *et al.* (eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis, University of Minnesota Press, 1979, 383-400. (Reprinted from P. Cole, (ed.), *Syntax and Semantics Vol 9: Pragmatics*, New York, Academic Press, 1978, 221-243.)

1979. 'On the Logic of Demonstratives', in P. A. French *et al.* (eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis, University of Minnesota Press, 401-412.

1989a. 'Demonstratives: an Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals', in J. Almog *et al.* (eds.), *Themes From Kaplan*, Oxford, Oxford University Press, 481-563.

1989b. 'Afterthoughts', in J. Almog *et al.* (eds.) *Themes from Kaplan*, Oxford, Oxford University Press, 565-614.

Katz, Jerrold

1972. *Semantic Theory*, New York, Harper and Row.

Kitcher, Philip

1980. 'A Priority and Necessity', *Australasian Journal of Philosophy* 58, 89-101.

Kneale, W., and Kneale, M.

1970. 'Propositions and Time', in A. Ambrose and M. Lazerowitz (eds.), *G.E. Moore: Essays in Retrospect*, New York, Humanities Press, 228-241.

Kripke, Saul

1959. 'A Completeness Theorem in Modal Logic', *Journal of Symbolic Logic* 24, 1-14.
- 1963a. 'Semantical Considerations on Modal Logic', in L. Linsky (ed.), *Reference and Modality*, Oxford, Oxford University Press, 1971, 63-72. (Reprinted from *Acta Philosophica Fennica* 16, 83-94.)
- 1963b. 'Semantical Analysis of Modal Logic I, Normal Propositional Calculi', *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik* 9, 67-96.
1965. 'Semantical Analysis of Modal Logic II, Non-normal Modal Propositional Calculi', in J. W. Addison *et al.* (eds.), *The Theory of Models*, Amsterdam, North-Holland, 206-220
1971. 'Identity and Necessity', in M. Munitz (ed.), *Identity and Individuation*, New York, New York University Press, 135-164.
1972. 'Naming and Necessity', in D. Davidson and G. Harman, (eds.), *Semantics of Natural Language*, Dordrecht, D. Reidel, 253-355. Also published as a book, with a substantive preface (*Naming and Necessity*, Oxford, Basil Blackwell, 1980). All page references given in this thesis are to the book.
1976. 'Is there a Problem about Substitutional Quantification?', in G. Evans and J. McDowell (eds.), *Truth and Meaning*, Oxford, Oxford University Press, 325-419.
1979. 'A Puzzle About Belief', in A. Margalit (ed.), *Meaning and Use*, Dordrecht, D. Reidel, 239-283.
1980. 'Preface' in *Naming and Necessity*, Oxford, Basil Blackwell.

Kroon, Fred

1982. 'Contingency and the *A Posteriori*', *Australasian Journal of Philosophy* 60, 40-54.
1989. 'Circles and Fixed Points in Description Theories of Reference', *Noûs* 23, 373-382.

Lemmon, E. J.

1966. 'Sentences, Statements and Propositions', in B. Williams and A. Montefiore (eds.), *British Analytic Philosophy*, London, Routledge & Kegan Paul, 87-107.

Lewis, C. I.

1946. *An Analysis of Knowledge and Valuation*, La Salle, Ill., Open Court.

Lewis, David

1972. 'General Semantics', in D. Davidson and G. Harman (eds.), *Semantics of Natural Language*, Dordrecht, D. Reidel, 169-218.
1981. 'Index, Context, and Content', in S. Kanger and S. Ohmann (eds.), *Philosophy and Grammar*, Dordrecht, D. Reidel, 79-100.
1986. *On the Plurality of Worlds*, Oxford, Basil Blackwell.

Linsky, Leonard

1971. *Reference and Modality*, Oxford, Oxford University Press.
1972. *Semantics and the Philosophy of Language*, Chicago, University of Illinois Press.
1977. *Names and Descriptions*, Chicago, University of Chicago Press.
1983. *Oblique Contexts*, Chicago, University of Chicago Press.

Loar, Brian

1981. *Mind and Meaning*, Cambridge, Cambridge University Press.

Locke, John

1706. *An Essay Concerning Human Understanding*, 5th ed., J. W. Yolton (ed.), New York & London 1961.

Loux, Michael J.

1979. *The Possible and the Actual: Reading in the Metaphysics of Modality*, Ithaca, Cornell University Press.

Martin, R. M.

1987. *The Meaning of Language*, Cambridge, Mass., A Bradford Book/MIT Press.

McDowell, John

1977. 'On the Sense and Reference of Proper Names', *Mind* 86, 159-85.

McGinn, Colin

- 1976a. 'On the Necessity of Origin', *Journal of Philosophy* 73, 127-135.
- 1976b. 'A *Priori* and A *Posteriori* Knowledge', *Proceedings of the Aristotelian Society* 76, 195-208.
1981. 'The Mechanism of Reference', *Synthese* 49, 157-186.
- 1982a. 'Rigid Designation and Semantic Value', *Philosophical Quarterly* 32, 96-115.
- 1982b. 'The Structure of Content', in A. Woodfield (ed.), *Thought and Object*, Oxford, Oxford University Press, 207-67.

Mill, John Stuart

1879. 'Of Names', in E. Nagel and R. B. Brandt (eds.), *Meaning and Knowledge: Systematic Readings in Epistemology*, New York, Harcourt, Brace & World, 1965, 60-87. (Reprinted from J. S. Mill, *A System of Logic*, 10th ed. Book I, Chaps. 1 and 2, London, Longmans, Green & Co., 1879.)

Mondadori, Fabrizio

1978. 'Interpreting Modal Semantics', in F. Guenther and C. Rohrer (eds.), *Studies in Formal Semantics*, Amsterdam, North-Holland, 13-40.

Montague, Richard

1968. 'Pragmatics', in R. Klibansky (ed.), *Contemporary Philosophy: A Survey*. Florence, La Nuova Italia Editrice, 102-22. (Reprinted in Montague 1974, as Chapter 3.)
1970. 'Pragmatics and Intensional Logic', *Synthese* 22, 68-94. (Reprinted in Montague 1974, as Chapter 4.)
1974. *Formal Philosophy*, New Haven, Yale University Press.

Moore, G. E.

1953. *Some Main Problems of Philosophy*, London, Allen & Unwin.

Morris, Thomas V.

1984. *Understanding Identity Statements*, Aberdeen, Aberdeen University Press.

Nicholls, P., and Passell, D.

1986. 'Kripke's Contingent *A Priori* and Necessary *A Posteriori*', *Philosophy Research Archives* 11, 481-189.

Odegard, D.

1976. 'On A Priori Contingency,' *Analysis* 36, 201-203.

Oppy, Graham

1989. 'Attitude Problems: The Semantics of Propositional Attitudes Ascriptions', doctoral dissertation, Princeton University.

Pap, Arthur

1958. *Semantics and Necessary Truth: An Inquiry into the Foundations of Analytic Philosophy*, New Haven, Yale University Press.

Parsons, Terence

1980. *Nonexistent Objects*, New Haven, Yale University Press.
1981. 'Frege's Hierarchies of Indirect Senses and the Paradox of Analysis', in P.A. French et al. (eds.), *Midwest Studies in Philosophy VI, The Foundations of Analytic Philosophy*, Minneapolis, University of Minnesota Press, 37-58.

Perry, John

1977. 'Frege on Demonstratives', *Philosophical Review* 86, 474-497.
1979. 'The Problem of the Essential Indexical', *Notus* 13, 3-21.

Plantinga, Alvin

1974. *The Nature of Necessity*, Oxford, Clarendon.

Putnam, Hilary

1973. 'Meaning and Reference', *Journal of Philosophy* 70, 699-711.
1975. 'The Meaning of "Meaning"', in *Philosophical Papers II: Mind, Language, and Reality*, Cambridge University Press, 215-271.

Quine, W. V.

1943. 'Notes on Existence and Necessity', *Journal of Philosophy* 40, 113-127. (Reprinted in L. Linsky (ed.), *Semantics and the Philosophy of Language*, Chicago, University of Illinois Press, 1972.)
1947. 'The Problem of Interpreting Modal Logic', *Journal of Symbolic Logic* 12, 43-48.
1951. *Mathematical Logic*, revised ed., Cambridge, Mass., Harvard University Press. (1st ed. 1940.)
1953. 'Three Grades of Modal Involvement', in W. V. Quine, *The Ways of Paradox and Other Essays*, Cambridge, Harvard University Press, 1966.

(Reprinted from *Proceedings of the XIth International Congress of Philosophy*, Brussels 1953, Vol 14, Amsterdam, North-Holland.)

1960. *Word and Object*, Cambridge, Mass., MIT Press.

1961. 'Reference and Modality', in W. V. Quine, *From a Logical Point of View*, 2nd ed., New York, Harper and Row, 139-159. (1st ed. 1953.)

1972. *Methods of Logic*, 3rd ed., New York, Holt, Rinehard and Winston.

Quinton, Anthony

1964. 'The A Priori and the Analytic', *Proceedings of the Aristotelian Society* 64, 31-54.

Ramsey, F.P.

1927. 'Facts and Propositions', in F. P. Ramsey, *Foundations: Essays in Philosophy, Logic, Mathematics and Economics*, edited by D. H. Mellor, London, Routledge & Kegan Paul, 1978, 40-57. (Reprinted from *Proceedings of the Aristotelian Society, Supplementary Volume VII*, 153-170.)

Richard, Mark

1989. 'Attitudes and Translation', unpublished manuscript.

Routley, Richard

1980. *Exploring Meinong's Jungle and Beyond: An Investigation of Noneism and the Theory of Items*, Canberra, Australian National University.

Russell, Bertrand

1904. 'Meinong's Theory of Complexes and Assumptions', *Mind* n.s. 13, 204-219, 336-354, 509-524. (Reprinted in B. Russell, *Essays in Analysis*, London, George Allen & Unwin, 1973.)

1905. 'On Denoting', *Mind* n.s. 14, 479-493. (Reprinted in B. Russell, *Essays in Analysis*, London, George Allen & Unwin, 1973.)

1906. 'On the Nature of Truth', *Proceedings of the Aristotelian Society*, n.s. 7, 28-49.

1912. *The Problems of Philosophy*, London, Williams & Norgate. New York, Oxford University Press, 1967.

1917. 'Knowledge by Acquaintance and Knowledge by Description', in *Mysticism and Logic and Other Essays*, London, George Allen & Unwin, 209-232.

1920. 'Descriptions', Chap. XVI of *Introduction to Mathematical Philosophy*, 2nd ed., London, Allen and Unwin. (Reprinted in L. Linsky

(ed.), *Semantics and the Philosophy of Language*, Chicago, University of Illinois Press, 1972.)

Sag, Ivan A.

1981. 'Formal Semantics and Extralinguistic Contest', in P. Cole (ed.), *Radical Pragmatics*, New York, Academic Press.

Salmon, N., and Soames, S.

1988. *Propositions and Attitudes*, Oxford, Oxford University Press.

Salmon, Nathan

1979a. Review of Linsky 1977, *Journal of Philosophy* 76, 436-452.

1979b. 'How Not to Derive Essentialism from the Theory of Reference', *Journal of Philosophy* 76, 703-25.

1982. *Reference and Essence*, Princeton, Princeton University Press.

1986. *Frege's Puzzle*, Cambridge, Mass., A Bradford Book/MIT Press.

1989a. 'Tense and Singular Propositions', in J. Almog *et al.* (eds.), *Themes From Kaplan*, Oxford, Oxford University Press, 331-392.

1989b. 'How to Become a Millian Heir', *Noûs*, 23, 211-220.

1989c. 'Reference and Information Content: Names and Descriptions', in D. Gabbay and F. Guenther (eds.), *Handbook of Philosophical Logic, Volume IV: Topics in the Philosophy of Language*, 409-461.

1990. 'How Not to Become a Millian Heir', manuscript, forthcoming, *Philosophical Studies*.

Schiffer, Stephen

1979. 'Naming and Knowing', in P. A. French *et al.* (eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis, University of Minnesota Press, 61-74.

1987. *Remnants of Meaning*, Cambridge, Mass., A Bradford Book/MIT Press.

Schwartz, Stephen P. (ed.)

1977. *Naming, Necessity, and Natural Kinds*, Ithaca, Cornell University Press.

Schwarz, David

1979. *Naming and Referring*, New York, Walter de Gruyter.

Scott, Dana

1967. 'Existence and Description in Formal Logic', in R. Schoenman (ed.),

Bertrand Russell: Philosopher of the Century, London, George Allen and Unwin, 181-200.

1970. 'Advice on Modal Logic', in K. Lambert (ed.), *Philosophical Problems in Logic: Some Recent Developments*, Dordrecht, D. Reidel, 143-173.

Searle, John R.

1958. 'Proper Names', *Mind* 67, 166-73.

1967. 'Proper Names and Descriptions', in P. Edwards (ed.), *The Encyclopedia of Philosophy, Volume 6*, New York, Macmillan Publishing Co. and The Free Press, 487-491.

Seeger, K.

1973. 'Two Dimensional Modal Logic', *Journal of Philosophical Logic* 2, 77-96.

Simpson, Paul,

1987. 'Here and Now', *Analysis* 47, 61-62.

Sloman, Aaron

1965. "'Necessary", "A Priori", and "Analytic"', *Analysis* 26, 12-16.

Smith, A.D.

1984. 'Rigidity and Scope', *Mind* 93, 177-193.

1987. 'Semantical Considerations on Rigid Designation', *Mind* 96, 83-92.

1988. Review of Salmon 1986, *Mind* 97, 136-137.

Smullyan, Arthur F.

1948. 'Modality and Description', in L. Linsky (ed.), *Reference and Modality*, Oxford, Oxford University Press, 1971, 35-43. (Reprinted from *Journal of Symbolic Logic* 13, 31-37.)

Soames, Scott

1987. 'Direct Reference, Propositional Attitudes, and Semantic Content', *Philosophical Topics* 15, 47-87. (Reprinted in Salmon and Soames (eds.), *Propositions and Attitudes*, Oxford, Oxford University Press, 1988, 197-239.)

1989. 'Semantics and Semantic Competence', in J. E. Tomberlin (ed.) *Philosophical Perspective, Vol. 3*, Ridgeview, 575-596.

Stalnaker, R

1972. 'Pragmatics', in D. Davidson and G. Harman (eds.), *Semantics of*

Natural Language, Dordrecht, D. Reidel, 380-397.

1976. 'Propositions', in A. MacKay and D. Merrill (eds.), *Issues in the Philosophy of Language*, New Haven, Yale University Press, 79-91.

1978. 'Assertion', in P. Cole (ed.), *Syntax and Semantics Vol 9: Pragmatics*, New York, Academic, 315-332.

1980. 'Logical Semiotic', in E. Agazzi (ed.), *Modern Logic - A Survey*, Dordrecht, D. Reidel, 439-456.

1981. 'Indexical Belief', *Synthese* 49, 129-151.

1987. 'Semantics for Belief', *Philosophical Topics* 15, 177-190.

Steinman, Robert

1985. 'Kripke-Rigidity versus Kaplan-Rigidity', *Mind* 94, 431-442.

Stich, Stephen

1983. *From Folk Psychology to Cognitive Science*, Cambridge, Mass., A Bradford Book/MIT Press.

Strawson, P.F. (ed.)

1964. 'Identifying Reference and Truth-Values', *Theoria* 30, 96-118.

Swinburne, R. G.

1975. 'Analyticity, Necessity and *A Priority*', *Mind* 84, 225-243.

Thomason, Richmond H.

1974. 'Introduction' in R. Montague, *Formal Philosophy*, New Haven, Yale University Press, 1974.

1975. 'Necessity, Quotation, and Truth, An Indexical Theory', *Philosophia* 5, 219-241.

Thomson, James F.

1969. 'Truth-bearers and the Trouble about Propositions', *Journal of Philosophy* 66, 737-747.

Tichy, Pavel

1983. 'Kripke on Necessary *A Posteriori*', *Philosophical Studies* 43, 225-241.

Tienson, John

1986. 'An Observation on Common Names and Proper Names', *Analysis* 46, 73-76.

Vision, Gerald

1985. 'I am Here Now', *Analysis* 45, 189-199.
1987. 'Antiphon', *Analysis* 47, 124-128.

von Wright, G.H.

1984. *Truth, Knowledge, and Modality*, Oxford, Basil Blackwell.

Wettstein, Howard K.

1984. 'How to Bridge the Gap Between Meaning and Reference', *Synthese* 58, 63-84.
1986. 'Has Semantics Rested on a Mistake?', *Journal of Philosophy* 83, 185-209.

Wiggins, D.

1974. 'Essentialism, Continuity, and Identity', *Synthese* 28, 321-359.
1980. *Sameness and Substance*, Cambridge, Mass., Harvard University Press.

Wong, Kai Yee

1990. 'A Priority and Ways of Grasping a Proposition', forthcoming, *Philosophical Studies*.

Wright, Crispin

1983. *Frege's Conception of Number as Objects*, Aberdeen, Aberdeen University Press.

Yu, Paul

1980. 'The Modal Argument Against Description Theories of Names', *Analysis* 40.

Zalta, Edward N.

1988. *Intensional Logic and the Metaphysics of Intentionality*, Cambridge, Mass., MIT Press.