UNFENCED EXISTENCE

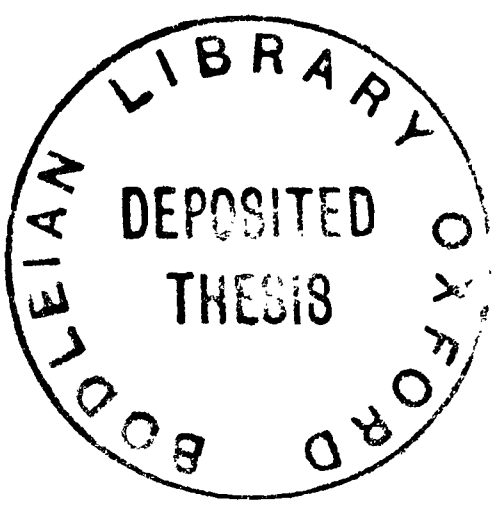
THE LOGIC AND METAPHYSICS OF NECESSARY BEINGS

David Efird

New College, Oxford

D. Phil. Thesis

Trinity 2002



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ABSTRACT

I defend the claim that every individual must have existed; or, in other words, that every individual is a necessary existent. Henceforth, I shall take the expression 'necessary existence' to abbreviate this claim, and I shall take 'contingent existence' to abbreviate the negation of this claim. In order to defend necessary existence, I clarify what I mean by 'exists'. I argue that there are many different senses of 'exists', and exactly one of these senses is appropriate for the purposes of philosophical logic and modal metaphysics. Making essential use of this sense of 'exists', I defend necessary existence against various objections embodied in several arguments for contingent existence. Having responded to these arguments, I then outline the requirements for a convincing case for necessary existence. Specifically, I argue that a metaphysical case must be made for the acceptance of this claim. This metaphysical case for necessary existence is embodied in an argument I present from the metaphysics of propositions. The premises of this argument concern the conditions under which a proposition is true and a proposition exists. Given these premises, it follows that everything is a necessary existent. I defend this argument from a number of objections to the metaphysics of propositions presented here. I then present and defend three arguments from formal, logical considerations for necessary existence. These three arguments make use of three common axioms or rules of inference. I defend each of these three principles from the objections posed by Saul Kripke, Kit Fine, and Arthur Prior. I then defend necessary existence from the challenges posed by Alvin Plantinga's modal theory of essences, David Lewis's counterpart theory, and Alan McMichael's role semantics. This completes my defence of the three arguments from formal considerations and the argument from metaphysical considerations.

ACKNOWLEDGEMENTS

I am indebted to many people for their help in shaping this work. I have presented parts of this work to audiences at the University of Durham, the University of Edinburgh, the University of Oxford, and the University of Reading. I would like to thank those who heard and responded to my arguments. The generous responses and insightful objections I received led to marked improvements in the present work.

Many people read parts of this work in different stages of its development. Of these individuals, I would like to thank Ian Rumfitt in particular who read the majority of the work and helped me to clarify, simplify, and better frame my arguments. My greatest intellectual debt is to Timothy Williamson who supervised this thesis. His influence will be seen on nearly every page. Finally, I would like to thank William Crawley who first introduced me to philosophy, read this work with an editor's eye, and without whom none of this would be possible. While I have benefited from the criticism from many people, the errors in this work are mine alone.

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1

INTRODUCTION

The claim that there are contingent existents seems to be part of the bedrock of common sense.[1] It appears to be one of those Moorean claims whose truth we are far surer of than any premise of a philosophical argument demonstrating the contrary. Simply put, that there are contingent existents seems to be a claim philosophers deny at their peril. (Henceforth, I will use 'contingent existence' to abbreviate the claim that there are contingent existents and 'necessary existence' to abbreviate the claim that everything is a necessary existent.)

As well as enjoying strong intuitive support, there are many commonsensical arguments in support of contingent existence. Most prominent among them is the argument based on a naturalistic analysis of existence, where an individual exists just in case that individual is causally efficacious, spatially located, or temporally located. On this analysis, it is highly implausible to claim that everything is a necessary existent. But there are further arguments in support of contingent existence – these arguments are based on considerations such as the necessity of origin, natural kinds, Ockham's razor, and a Humean account of possibility. So contingent existence is not only anchored in intuition, but its apparent truth is also supported by many

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[1] G. E. Moore famously begins his article, 'In Defence of Common Sense', with a list of 'truisms, every one of which (in my opinion) I *know*, with certainty to be true'. One of these 'truisms' is that 'the earth had existed for many of these years, also, large numbers of human bodies had, at every moment, been alive upon it; and many of these bodies had died and ceased to exist before it [Moore's body] had been born'. Underlying this 'truism' is a commitment to contingent existence, and also a naturalistic understanding of the existence predicate, an understanding that I argue in the following chapter is inappropriate for the purposes of modal metaphysics and philosophical logic. See Moore 1925, pp. 193-194.

philosophical arguments whose premises are independently plausible. All of these should incline one against necessary existence, the curious claim I propose to defend.

But contingent existence is not altogether invulnerable to attack. From simple principles governing the logic of necessity and also from plausible metaphysical principles governing the truth and existence of propositions, we can reasonably conclude that everything is a necessary existent. In which case, it seems that our existence knows no bounds; it is unfenced, one might say.[2]

A seemingly intractable problem therefore presents itself. It seems absurd to suppose that everything is a necessary existent, yet some fundamental claims that seem to underlie the metaphysics of propositions and also the principles of a simple quantified modal logic – the sort of principles we want to use in our modal reasoning – lead simply and quickly to just that apparently absurd conclusion. As a result, we are faced with a decision. Which of the following intuitively supported elements should be denied: the semantics and metaphysics that yield contingent existence or the metaphysical and logical principles that give rise to necessary existence? I resolve this conflict between contingent existence and necessary existence in favour of necessary existence, and I argue that the objections to necessary existence embodied in the arguments for contingent existence can all be answered. Let me briefly outline my defence of necessary existence.

AN OUTLINE OF MY DEFENCE OF NECESSARY EXISTENCE

Chapter 2 examines a semantic argument against necessary existence, where 'exists' is taken to have some naturalistic meaning. I argue there that 'exists' should not be

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[2] The phrase, 'unfenced existence', is due to Philip Larkin. It occurs in his poem 'Here':

> Here is unfenced existence:
> Facing the sun, untalkative, out of reach.

taken to have this meaning in the context of philosophical logic and modal metaphysics. Rather, in this context the meaning of 'exists' must be governed by a logical principle termed 'the Existence Principle'. On this understanding of existence, an individual exists just in case that individual *is something*, and *being something* does not entail having any naturalistic properties such as being spatially located, being causally efficacious, or being temporally located. Consequently, if this argument is sound, then this semantic objection does not threaten the truth of necessary existence.

In Chapter 3 I outline several further objections to necessary existence embodied in arguments founded on the necessity of origin, natural kinds, Ockham's razor, a Humean account of possibility, and other such considerations. These objections can all be satisfactorily answered, or so I argue. In some cases, a satisfactory response requires the development of a metaphysics that accommodates necessary existence. This metaphysics forms a natural complement to the analysis of existence given in Chapter 2, but it does not come without a price. Specifically, the adoption of this metaphysics requires a revision of many widely shared modal intuitions such as the necessity of origin, the impossibility of bare particulars, and intuitions concerning natural kinds.

One can imagine the proponent of contingent existence refusing to adopt such a metaphysics because, she claims, we are far surer of the intuitions mentioned above than any metaphysics which requires their revision. In Chapter 4, I examine what it would take to change the objector's mind. Timothy Williamson has advanced an argument of the following sort for necessary existence: necessary existence is a consequence of a simple modal logic; formal simplicity of this sort is a guide to truth; therefore, necessary existence is true. On Williamson's view, a formal argument utilising a simple modal logic for necessary existence should convince the objector of

the truth of necessary existence. Contrary to Williamson, I argue that a metaphysical argument is required, in addition to any formal argument, in developing a convincing case for necessary existence. This metaphysical argument is defended in Chapter 5.

Chapter 6 turns to more theoretical issues. Necessary existence follows from some simple principles of the propositional modal system K together with classical quantification theory. In this logic, there are three formal arguments for necessary existence. These three arguments contain three common elements: the assertion of formulas containing free variables as lines in proofs, the assumption that all domains are non-empty, and the use of the rule of necessitation. That all domains are non-empty is also assumed in the metaphysical argument given in Chapters 5. Accordingly, the denial of this claim would threaten not only the formal arguments given in Chapter 6 but also the metaphysical argument given in Chapter 5. Chapters 7 – 9 examine the denial of each of these elements in turn.

I then turn to a defence of necessary existence on a different front. I discuss three influential proposals that cast necessary existence and the arguments for this claim in a completely different light because they offer a new way of understanding modal statements. These three proposals are Alvin Plantinga's theory of essences, David Lewis's counterpart theory, and Alan McMichael's role semantics. On each of these proposals, necessary existence is false, and Chapters 10 – 12 argue against the adoption of these proposals in turn. This concludes my defence of necessary existence.

2

A SEMANTIC ARGUMENT AGAINST NECESSARY EXISTENCE

One prominent argument that explicates the Moorean intuition supporting the apparent truth of contingent existence is a semantic argument of the following sort.

> To exist is to be spatially located (or temporally located, or causally efficacious). If necessary existence is true, then I am necessarily spatially located (or temporally located, or causally efficacious). But I might have lacked spatial location (or temporal location, or causal efficacy). Therefore, necessary existence is false.

In response to this objection to necessary existence, I argue that the first premise of this argument is false. In order to argue against this premise, I defend a certain view of the meaning of 'exists' in philosophical logic and modal metaphysics. This view is rooted in a bit of ordinary language philosophy, but the view does not ultimately end up in this philosophical quarter: I make descriptive claims about what we *do* mean by 'exists', and I then make a normative claim about what we *should* mean by 'exists', at least within philosophical logic and modal metaphysics.

To begin to describe the view I defend, I will suggest that 'exists' has many meanings. This claim can hardly be described as controversial – all but the shortest dictionaries containing the most abbreviated entries list several meanings for 'exists'. Though the claim that 'exists' has many meanings is clearly true as a descriptive claim about natural language, its truth is not particularly important on its own. What is important, what must be kept in mind when discussing questions of existence, is

that some of these meanings are appropriate to some branches of philosophy while being inappropriate for others.

For example, while 'has spatial location' might be an appropriate sense of 'exists' for the philosophy of perception, this sense is inappropriate for the philosophy of mathematics. Taking 'has spatial location' as the meaning of 'exists' for the philosophy of mathematics would quickly settle one of the most important questions in this area, 'Do numbers exist?' If 'exists' has this meaning, it is clear that numbers do not exist because they are not the kind of thing that can have such a property; numbers are abstract. Therefore, it is vital that 'exists' should not be interpreted as meaning 'has spatial location' if philosophical logic is to remain neutral on the resolution of one of the perennial philosophical problems.

Given that 'exists' has many meanings, some appropriate for some branches for philosophy, and others appropriate for other branches, I argue that 'exists' has one intuitive and theoretically tractable meaning that is appropriate for philosophical logic. If this particular meaning of 'exists' is taken as the meaning of 'exists' in the claim that everything is a necessary existent, this claim does not seem as implausible as it initially might appear. I will state the sense of 'exists' I take to be important for philosophical logic and then defend the principle underlying this sense from a number of objections.

THE DISAMBIGUATION OF 'EXISTS'

In his historic Grand Jury testimony of 17 August, 1998, President Clinton introduced a notorious disambiguation of the meaning of the word 'is':

> Question: Your – that statement is a completely false statement. Whether or not Mr. Bennett knew of your relationship with Ms. Lewinsky, the statement that there was no sex of any kind in any manner, shape or form with President Clinton was an utterly false statement. Is that correct?
>
> Clinton: It all depends on what the meaning of the word 'is' is. If 'is' means 'is, and never has been', that's one thing. If it means, 'there is none', that was a completely true statement.[1]

Robert Tracinski, a Conservative journalist, takes Clinton's sentence, 'It all depends on what the meaning of the word "is" is' to mean: 'existence as such is conditional and can be distorted to fit one's wishes'.[2] Without endorsing either Clinton's particular disambiguation of the meaning of 'is' or Tracinski's interpretation of Clinton's disambiguation, we may suppose that both Clinton and Tracinski suggested something right about the existence predicate, namely, that it has many meanings (Clinton), and it can be used for different purposes depending upon the interests of the speaker and hearer (Tracinski's interpretation of Clinton).

I have already claimed that 'exists' has many meanings in natural language, at least according to the dictionaries. Some of these meanings include: 'to be', 'to be real', 'to have life', 'to subsist', 'to persist', and 'to occur'. Clearly, these meanings are not equivalent in any substantial sense – a table persists, but it does not have life nor does it occur, for example. Given that 'exists' has many meanings in natural language and that much of philosophy is done in natural language, it should not be surprising that 'exists' has many meanings within philosophy. What one philosopher means by 'exists', another may find unrecognisable as a meaning of 'exists'. Consider the following scenario.

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[1] Kristiansen 2000. The quotation marks are added to observe the use/mention distinction.
[2] Tracinski 2000.

> One philosopher maintains (i) that to exist is to be temporally located, (ii) that God is temporally located because God is in time, but (iii) that God happens not to be causally efficacious because God never intervenes in the world's affairs.
>
> Another philosopher maintains (i) that to exist is to be causally efficacious, (ii) that God is causally efficacious because God does intervene in the world's affairs, but (iii) that God is not temporally located because God is outside time.

Each philosopher, if asked, 'Does God exist?' would respond affirmatively. But each philosopher would express a different proposition by the sentence 'God exists'. Furthermore, each philosopher would be an atheist in the other's terms. However, it seems that both philosophers are, indeed, theists because each philosopher thinks that God is *something*. It is this commonality between these two imaginary philosophers' claims concerning God that I intend to emphasise as the one and only meaning of 'exists' for philosophical logic.[3]

THE EXISTENCE PRINCIPLE

The commonality between the two imaginary philosophers' uses of 'exists' is the meaning of 'exists' that Timothy Williamson argues is appropriate for philosophical logic. Williamson claims that the existence predicate is ambiguous between a wide, logical sense of 'exists' (one that is determinate solely in virtue of its intra-linguistic connections and applies to all individuals), and a set of narrow, non-logical senses of 'exists' (those that are determinate, but not solely in virtue of their intra-linguistic

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[3] In a similar vein, Robert Adams writes, 'I am inclined to say that in some fairly ordinary sense of "mean," a phenomenalist, and a philosopher who holds some conflicting theory about what it is for a physical object to exist, do not mean exactly the same thing by "There is a bottle of milk in the refrigerator." But they certainly do not mean entirely different things, and they can agree that there is a bottle of milk in the refrigerator.' See Adams 1973, p. 107. The page reference is to the reprinted version in Helm 1981.

connections and do not apply to all individuals).[4] The wide, logical sense of 'exists', Williamson argues, is the sense of 'exists' that is appropriate for philosophical logic. He distinguishes between these two senses by whether or not they obey the following Existence Principle:

(EP) $F(t_1, t_2, t_3, \ldots t_n) \vdash E!(t_1, t_2, t_3, \ldots t_n)$.

The Existence Principle is a schema where 't_1', 't_2', 't_3', . . . 't_n' may be replaced by any non-descriptive singular terms and 'F' may be replaced by any n-place predicate having no initial operators, such as the negation operator or the possibility operator.[5]

For example, if Tony Blair is wise, then, by the Existence Principle, Tony Blair exists. A more noteworthy example can be found in Samuel Beckett's play, *Endgame*. In this play, after attempting to pray Hamm exclaims, 'The bastard! He doesn't exist!'[6] Assuming that a fair, though extremely pedantic, rendering of Hamm's thought is, 'He, the bastard, doesn't exist', Hamm's thought has violated the Existence Principle because his thought implies that the referent of 'he' is a bastard, but this individual does not exist.

I should say a word at this point on the relationship between the formula $E!t$ and the formula $\exists x\ x = t$. These formulas are not synonymous, but they are logically equivalent. One reason for denying the synonymy between these two principles is that the existence predicate, just like the identity relation, is primitive. In other words, just as the identity relation is not grounded in some more basic claim not involving this relation, the existence predicate is not grounded in some more basic predicate not

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[4] Williamson distinguishes a third possibility: the sense of 'exists' is not determinate. He dismisses this possibility because 'exist' seems to function as a 'normal predicate' in sentences such that 'sentences which involve it do not tend to lack a truth value'. See Williamson 1989, p. 107.

[5] This formulation of the Existence Principle corresponds to a principle Williamson dubs 'EP+'. See Williamson 1987/1988, pp. 125-126. In this paper, he calls the schema $Ft \vdash E!t$, where 'F' is a monadic predicate, 'the Existence Principle'. See Williamson 1987/1988, pp. 115-116.

[6] Beckett 1958. Intriguingly, Clov replies to Hamm, 'Not yet.'

involving this very predicate. While the formula $E!t$ is not synonymous with, or definable as, the formula $\exists x\ x = t$, these formulas are logically equivalent to each other. An argument for this logical equivalence is the following. If $E!t$ is true, then the referent of t is within the range of the existential quantifier. That is, there is some object in the domain referred to by 't' if $E!t$ is true. Therefore, the formula $E!t$ entails the formula $\exists x\ x = t$. Now, by the Existence Principle and existential instantiation, the formula $\exists x\ x = t$ entails formula $E!t$. Thus, the formulas $E!t$ and $\exists x\ x = t$ are logically equivalent. Having stated the Existence Principle, I now give an argument for this principle and note some of its consequences.

LOGICAL EXISTENCE

Why should we adopt the Existence Principle? We should adopt it for the purposes of philosophical logic because it follows from the logical truth that everything exists ($\vdash \forall x E!x$).[7] If it is a logical truth that everything exists, then we can conclude by material implication introduction that it is also logically true that everything having an atomic property exists ($\vdash \forall x(Fx \supset E!x)$, where '$Fx$' is atomic). We can now substitute a non-descriptive singular term for the variable 'x' and eliminate the universal quantifier to obtain: $\vdash (Ft \supset E!t)$. Now by material implication elimination, we have: $Ft \vdash E!t$, which is an instance of the Existence Principle. Thus, the logical truth that everything exists entails the Existence Principle. Thus, as a matter of logic,

[7] Many, notably Meinongians, deny this premise. Meinongians argue that there are non-existent objects, objects that subsist, or are, but do not exist. These objects can be quantified over, but the existence predicate cannot be truly applied to them. As this position is logically and necessarily false, or so I argue in Chapter 6, I do not deal with a Meinongian objection here.

the sense of 'exists' governed by the Existence Principle is the widest sense of 'exists'.

Now if we take 'exists' as governed by the Existence Principle, then this sense of 'exists' that obeys this principle is a logical constant. The argument is as follows. First, any two existence predicates obeying the Existence Principle are logically equivalent.[8] The proof of this claim is the following. Consider two existence predicates, $E!_1$ and $E!_2$. Assume that both $E!_1$ and $E!_2$ obey the Existence Principle. If $E!_1$ obeys the Existence Principle, then $E!_2t \vdash E!_1t$. If $E!_2$ obeys the Existence Principle, then $E!_1t \vdash E!_2t$. Thus, if both $E!_1$ and $E!_2$ obey the Existence Principle, $E!_1t \dashv\vdash E!_2t$. Therefore, any two existence predicates obeying the Existence Principle are logically equivalent. If any two existence predicates obeying the Existence Principle are logically equivalent, then the Existence Principle defines the existence predicate.[9] Consequently, the sense of the existence predicate is determined only by its inferential connections.[10] We can then conclude that this expression is a logical constant. Therefore, if the Existence Principle governs the meaning of 'exists', the existence predicate is a logical constant. As this sense of 'exists' is a logical constant, this sense is aptly termed 'logical existence'.

There are two further consequences of understanding 'exists' as governed by the Existence Principle that are relevant to the controversy over necessary existence. The first is that those who engage in ontological disputes are sure to be genuinely disagreeing with each other as opposed to equivocating over the meaning of 'exists'.[11] This is so because there is precisely one sense of 'exists' governed by the Existence

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[8] This argument can be found in Williamson 1987/1988 p. 117, Williamson 1989 pp. 103-104, and Williamson 1990, p. 171.
[9] Williamson 1987/1988, p. 117.
[10] Williamson 1989, p. 104.
[11] Williamson 1987/1988, pp. 116-117.

Principle. The second is that the sense of 'non-existence' governed by the Existence Principle is the most radical. If an object does not exist, then, by the Existence Principle, there are no true atomic propositions about that object.

THEORETICAL CONTROL VERSUS INTUITIVE APPEAL

The Existence Principle gives us some theoretical control over the existence predicate, and this theoretical control yields two beneficial consequences. First, there is a logical guarantee that ontological disputes are not mere equivocations over the existence predicate; second, the sense of 'non-existence' is the most radical sense of 'non-existence'. But in many cases, having theoretical control over a particular concept varies inversely with having an intuitive understanding of that concept. A contested example of a manifestation of this inverse relationship is the extensional truth conditions given for modal propositions. Extensional truth conditions of modal propositions give us a great deal of theoretical control over modality but, it is argued, at the cost of the intuitive understanding of modality.

On the extensional analysis of the truth conditions of modal propositions, a proposition that is necessarily true is a proposition that is true in all possible worlds, and a proposition that is possibly true is true in some possible world. With these equivalences, the semantics of modal logic can be done in a purely extensional world theory. Some measure of progress has been made in understanding this extensional world theory, so doing the semantics of modal logic in a purely extensional world theory gives us control over the modal notions of necessity and possibility. But the so-called modalists argue that extensional world theory does not advance our intuitive understanding of modal concepts. A summary of their argument is the following.

> If we can understand the concept of a possible world, we can surely understand the concept of possibility itself. Consequently, an extensional world theory of modal propositions moves us no closer to understanding the modal concepts themselves. And how can we be sure that these extensional equivalences capture what we mean by the modal concepts? Therefore, in order to safeguard the intuitive understanding of modality, we should not have an extensional world theory, but, rather, a homophonic theory of modality where the modal notions themselves appear unanalysed. In this way, we will be sure we are not moving away from the intuitive meanings of the modal concepts.

As with most debates in philosophy, this debate between the extensional world theorists and the modalists is not resolved, but the existence of the debate highlights the potential danger of moving away from an intuitive meaning of a concept by incorporating theoretical control over that concept.

For present purposes, if we have a great deal of theoretical control over a concept – say, existence as governed by the Existence Principle – we may risk losing contact with an intuitive understanding of that concept, in this case, an intuitive concept of existence. Though there is this risk of losing intuitive appeal, the Existence Principle does have some intuitive support. Say that an atomic proposition about a particular individual is true, for example, 'Blair is wise'. Can it be that this proposition is true while Blair fails to exist? If Blair does not exist, how can he be wise? Or more generally, if '*a* is *F*' is true, then if *a* does not exist, what is doing the *F*-ing? I think that many, if not most people would find these questions compelling and judge that they constitute some intuitive support for the Existence Principle. While I am not claiming that this observation is a conclusive argument for the Existence Principle, I do think that it links with some of our intuitions about existence and predication. These intuitions may be wrong, but we do, I think, have them.

NON-LOGICAL EXISTENCE

Though there does seem to be some intuitive support for the Existence Principle, it may still appear that the identification of existence *simpliciter* with logical existence generates a loss of intuitive appeal. We can acknowledge this apparent loss by distinguishing a variety of senses of 'exists' that are not governed by the Existence Principle. Some of the more prominent senses of 'exists' that do not obey the Existence Principle are the following: to exist is to be perceived, to exist is to be causally efficacious, to exist is to spatially located, and to exist is to be temporally located.[12]

Armed with an understanding of 'exists' as 'being perceived', some philosophers, most notably Berkeley, have constructed a thoroughly idealistic metaphysics where the existence of the world is dependent upon its being perceived by 'that eternal invisible Mind which produces and sustains all things.'[13] With a different understanding of 'exists', other more naturalistically minded philosophers have argued that such objects as propositions and properties do not exist since they are not spatially located, while others have argued that numbers do not exist since they are not causally efficacious. Thus, what one takes to exist or not to exist largely depends on what one takes 'exists' to mean. The pressing question here is what should we take 'exists' to mean in the context of philosophical logic?

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[12] The third and fourth senses, to be spatially located and to be temporally located, are often combined in the sense of 'exists' as spatio-temporal location. These two senses of 'exists' are not always so combined, and it appears that they are not metaphysically necessarily co-extensive senses: an individual can exist in time without existing in space. Though it appears these senses are not metaphysically necessarily co-extensive, if relativity theory is correct, an individual cannot exist in time without existing in space and vice versa. Thus, these senses are physically necessarily co-extensive. As my discussion centres on philosophical logic and modal metaphysics, I have separated the two senses here.

[13] Berkeley 1998a, part I, sect. 95, p. 137.

These senses of 'exists', namely, 'is perceived', 'is spatially located', 'is temporally located', and 'is causally efficacious', clearly do not obey the Existence Principle and are not logically equivalent to each other. It would be absurd to argue from the assumption that Tony Blair is wise to the conclusion that Tony Blair is perceived; or from the assumption that the proposition that it is raining outside is true to the conclusion that the proposition that it is raining outside is causally efficacious; or from the assumption that the number seven is abstract to the conclusion that the number seven is spatially located. Just as it would be absurd to make these inferences, it would be absurd to suppose any of these non-logical senses of 'exists' is logically equivalent to any of the other non-logical senses of 'exists'.

Furthermore, these senses of 'exists' do not obey any single law or set of laws that have any claim to being logical laws. What logical law could possibly govern the predicate 'is perceived', or the predicate 'is temporally located'? Since these senses do not obey any single law or set of laws that have any claim to being logical laws, such as the Existence Principle, these senses cannot be uniquely characterized in purely logical terms. And given that they cannot be uniquely characterized in purely logical terms, the existence predicates associated with them cannot be logical constants. Consequently, these non-logical senses of 'exists' are of limited logical interest.

Furthermore, these non-logical senses are narrower senses of 'exists' than the sense governed by the Existence Principle because they do not apply to all objects as a matter of logic. Generally, for all non-logical senses of 'exists', it is logically possible that there is an object that does not satisfy the definition associated with the given sense of 'exists'. Consequently, it is not logically true that a given non-logical sense of 'exists' applies to all objects. Thus, the logical sense of 'exists' is wider than

the narrower sense of 'exists'. Just as it is a mistake to equate the identity relation with weaker forms of equivalence,[14] it is a mistake to equate the existence predicate with stronger forms of being. This is a mistake because these stronger forms of being do not obey any logical laws, such as the Existence Principle, and they are not logically equivalent to each other. Their non-equivalence invites equivocation.

On the Appropriateness of a Non-Logical Sense of 'Exists' for Philosophical Logic

One reply that might be made to the above arguments for taking the logical sense of 'exists' as the meaning of the existence predicate within philosophical logic is the following:

> While it is true that taking the logical sense of 'exists' as the meaning of the existence predicate within philosophical logic guarantees logically that there will be no equivocation over the existence predicate, we need not restrict ourselves to the logical meaning of the existence predicate to achieve such a guarantee.
>
> Acknowledging that 'exists' has many meanings within natural language and also within philosophy, we can guarantee that there will be no equivocation over the existence predicate within philosophical logic by explicitly stating what we mean by the existence predicate. For example, before engaging in a debate over whether God exists or not, we can state that we mean 'is causally efficacious' by 'exists' in the sentence 'God exists'. A debate can then occur free of equivocation over 'exists'.[15]
>
> As a result, though taking the existence predicate to have its logical meaning is sufficient for logically guaranteeing there will be no equivocation over the existence predicate in philosophical logic, it is not necessary to take the existence predicate to have its logical meaning in order to guarantee that there will be no such equivocation.

I respond to this suggestion by arguing that, though each non-logical sense of 'exists' has some intuitive appeal as explicating what we mean by 'exists', this sense is

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[14] Ruth Barcan Marcus argues for this claim in Marcus 1993.

[15] Here the objector assumes that there is no equivocation over the terms in the predicate 'is causally efficacious'.

inappropriate for philosophical logic. Consequently, the logical sense of 'exists' is necessary for the purposes of philosophical logic. I begin with a brief look at the proposal that 'is perceived' is an adequate understanding of 'exists' in philosophical logic, and I examine the remaining non-logical understandings of 'exists' in turn.

Famously, Berkeley proclaimed, '*Esse* is *percipi*' for sensible objects.[16] He took this purported equivalence between existence and being perceived to be obvious:

> Some truths there are so near and obvious to the mind, that a man need only open his eyes to see them. Such I take this important one to be, to wit, that all the choir of heaven and furniture of the earth, in a word all those bodies which compose the mighty frame of the world, have not any subsistence without a mind, that their being is to be perceived or known; that consequently so long as they are not actually perceived by me, or do not exist in my mind or that of any other created spirit, they must either have no existence at all, or else subsist in the mind of some eternal spirit.[17]

Existence, for Berkeley, consists in being perceived, and because the divine Mind perceives everything, everything exists. Berkeley's doctrine of the divine Mind does yield one of the principles essential to classical logic – everything exists – but it is clear that Berkeley's understanding of existence is an inadequate basis for interpreting the existence predicate within philosophical logic because this understanding requires a form of theism in order to secure the claim that everything exists. As a judgement one way or another on the question of theism is inappropriate for the foundations of philosophical logic, Berkeley's idealistic understanding of 'exists', while it may be appropriate for some theistic philosophy, is inappropriate for philosophical logic.

However, Berkeley's idealistic understanding of existence does have some intuitive appeal. The intuitive appeal of Berkeley's equation of existence with being perceived is that an individual's being perceived is a sufficient basis for concluding

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[16] Berkeley 1998a, part I, sec. 3, p. 104. It is clear that Berkeley is considering the existential use of 'is' and taking that sense to be synonymous with 'exists'.
[17] Berkeley 1998a, part I., sec. 6.

that the individual in question exists.[18] Though being perceived is not, in general, necessary for existing, it is certainly sufficient for existing. Berkeley states the absurdity of doubting the existence of an individual one perceives in his *Three Dialogues Between Hylas and Philonous*. In the third dialogue, Philonous remarks, 'That a thing should really be perceived by my senses, and at the same time not really exist, is to me a plain contradiction; since I cannot prescind or abstract in thought, the existence of a sensible thing from its being perceived.'[19] Earlier, Locke had expressed the same sentiment in response to the problem of scepticism. Locke writes,

> I think nobody can, in earnest, be so sceptical as to be uncertain of the existence of those things which he sees or feels. At least he that can doubt so far, (whatever he may have with his own thoughts,) will never have any controversy with me; since he can never be sure I say anything contrary to his own opinions.[20]

This impatience with scepticism reached something of a climax with Reid's commonsense philosophy, where one of the fundamental claims of Reid's view is that '[e]very man feels that perception gives him an invincible belief of the existence of that which he perceives, and that this belief is not the effect of reasoning, but the immediate consequence of perception.'[21] Thus, it is widely agreed that an individual's being perceived is a sufficient basis on which to judge that the individual in question exists.[22] However, being perceived is not a necessary feature of existing.

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[18] In connection with the argument from illusion, A. J. Ayer claims that 'perceive' is ambiguous between two senses, one that licences the inference from the assumption that an individual is perceived to the conclusion that that individual exists, and one that does not. Each sense, according to Ayer, is 'correct', 'familiar' and 'sanctioned by convention'. See Ayer 1940. H. H. Price also claims that 'perceive' suffers this ambiguity, but the sense that licences the inference in question 'comes closer to ordinary speech'. See Price 1932, p. 23. While I doubt that 'perceive' is ambiguous, as Ayer and Price claim, I take the sense of 'perceive' in this section to be that sense that licences the inference from an individual's being perceived to that individual's existing.

[19] Berkeley 1998b, dial. 3, sec. 230, p. 113.

[20] Locke 1979, bk. IV, ch. 11, sec. 3, p. 631.

[21] Reid 1969, ch. xv, p. 241.

[22] An arresting exception to this wide agreement occurs in Jean-Paul Sartre's play, *No Exit*. On discovering that there are no mirrors in Hell, Estelle says, 'I feel so queer. Don't you ever get taken

While it is unlikely that Berkeley's idealistic understanding of existence would be suggested as a plausible understanding of existence for philosophical logic, it is likely that some philosophers, especially those of a more naturalistic bent, where philosophy is seen as a branch of the natural sciences, might regard the understanding of 'exists' as 'is causally efficacious', or 'is spatially located', or 'is temporally located'. While it is beyond the scope of the present work to argue against such a conception of philosophy, the suggestion that 'exists' should be understood in accordance with this conception must be taken seriously.

One of the clearest statements of the claim that 'exists' is to be understood as 'is spatially located' is found in Isaac Newton's work. He writes,

> No being exists or can exist which is not related to space in some way. God is everywhere, created minds are somewhere, and body is the space that it occupies; and whatever is neither everywhere nor anywhere does not exist. And hence it follows that space is an effect arising from the first existence of being, because when any being is postulated, space is postulated.[23]

A similarly clear statement of the claim that 'exists' is to be understood as 'is temporally located', specifically, 'is temporally located at the present or has been temporally located', is found in C. D. Broad's work. Arguing that there is an existential asymmetry between the past and the future, Broad writes, 'The future is simply nothing at all. Nothing has happened to the present except that fresh slices of existence have been added to the total history of the world. The past is thus as real as the present.'[24]

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that way? When I can't see myself I begin to wonder if I really and truly exist. I pat myself to make sure, but it doesn't help much.' Even though Estelle touches herself, surely a form of perception, she is unsure that she exists. See Sartre 1989, act 1, sc. 5, p. 19.

[23] Newton 1952, query 31, p. 403.

[24] Broad 1923, p. 66.

Finally, it is almost a commonplace among metaphysicians to take 'exists' as 'to be part of the causal network of the world'. In order to account for *recherché* counter-examples to this understanding of 'exists', D. M. Armstrong has proposed the following principle:

> Everything that exists makes a difference to the causal powers of something.[25]

Graham Oddie has dubbed a principle from which Armstrong's descends the 'Eleatic Principle', after the Eleatic Stranger in Plato's *Sophist*.[26]

Some may suppose these senses of 'exists', namely, 'is spatially located' and 'is causally efficacious', to be equivalent. This supposition is a mistake. We should allow for the logical possibility of an individual being causally efficacious without being spatially or temporally located. Such a possibility is being developed in a leading theory of fundamental physics – superstring theory – where some objects (strings) are thought to be causally efficacious without having spatial or temporal location, since, strictly speaking, space and time are not fundamental, but, rather, derived features of this world that arise from the strings themselves.[27] Strings, in some sense, create space and time, so they need not be spatially and temporally located in order to be causally efficacious. Fundamental physics aside, it would be a mistake to build in such empirical considerations in logic, which we would be doing if we decided *a priori* to regard these non-logical senses of 'exists' as logically equivalent.

Assuming that we take these non-logical senses individually, they each have some intuitive plausibility *vis-á-vis* what we mean by 'exists' in some contexts. When I say that the Statue of Liberty exists, many, if not most people, would take me

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[25] Armstrong 1997, p. 41.
[26] Oddie 1982.
[27] Greene 1999, pp. 376-380.

to mean that the Statue of Liberty has a certain spatial location at present, and they would also assume that it plays a causal role in the world, as Thierry Devaux, a stunt paraglider, found out to his chagrin when his parachute became entangled on the Statue's torch.[28] Also, when a scientist says that a certain particle exists, we would take her to mean, at least, that this particle plays a certain role in the causal nexus of the world. However, are these understandings of 'exists' adequate understandings of 'exists' for philosophical logic?

The most compelling argument for taking one of these non-logical senses of 'exists' as the meaning of the existence predicate for the purposes of philosophical logic is due to Armstrong. He gives the following argument for the Eleatic Principle, which, if true, would govern the meaning of 'exists'.

> If an entity makes no difference to the causal powers of anything, then there would never be any good reason for postulating that thing's existence. Our whole experience, including all our thinking, would go on in exactly the same way whether or not the entity existed. So why postulate it?[29]

The reasons for postulating such entities, entities that do not participate in the causal network of the world, are broadly theoretical. Paul Benaceraff argues that a Platonic theory of mathematical object makes the best sense of the semantics of mathematical statements.[30] His argument can be summarised in the following way.

> Mathematical entities understood in a Platonic way are neither spatio-temporally located nor causally efficacious. But we are committed to their existence, nevertheless, if we want to give a unified semantics of discourse formulated in natural language and discourse formulated in mathematics. Because such a unified semantics is highly desirable for theoretical reasons, we ought to be Platonists about mathematical objects.

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[28] *The New York Times*, August 24, 2001, p. 1.
[29] Armstrong 1997, p. 42.
[30] Benaceraff 1973.

Similarly, David Lewis's reasons are theoretical for believing in a plurality of concrete possible worlds, none of which, apart from the actual world itself, is causally relevant to this world. If we postulate the existence of such worlds, he argues, we can solve longstanding problems in philosophy, and, their theoretical benefit, thereby, outweighs their ontological cost. Finally, I present an argument from theoretical considerations in Chapter 5 for the existence of propositions, which are also not causally relevant to the goings on of this world. Thus, in answer to Armstrong, there can be good, theoretical reasons for the postulation of entities that are causally irrelevant to the world.

While it is highly unlikely that Armstrong would be convinced by such arguments for the existence of individuals that are causally irrelevant to this world, the more important consideration is that the philosophical logician should not prejudge the proper resolution of such debates in the philosophy of mathematics or metaphysics. Following Quine, when the philosophical logician is asked, 'What exists?', she should respond, 'Everything', and just what the quantifier 'everything' ranges over should not be determined by logic alone. While logic does have metaphysical implications, a claim I argue for in Chapter 4, logic should not be in the business of providing an analysis of the existence predicate over and above 'to be something'. Accordingly, for the purposes of philosophical logic, only the logical sense of 'exists' is appropriate.

This argument can be expanded in the following way. Though such understandings of non-logical 'exists' may be relevant to some branches of philosophy – say, the philosophy of science – these understandings are not relevant to philosophical logic because they are too restrictive. If everything exists ($\forall x E!x$) is both a logical and a necessary truth, as I argue in Chapter 6, and the universal

quantifier signified by 'everything' is taken to be unrestricted, an assumption fundamental to philosophical logic and modal metaphysics, then everything, absolutely everything, exists as a matter of logic and, so, as a matter of necessity. If everything exists as a matter of logic and necessity, we cannot take 'exists' to mean 'is causally efficacious', 'is spatially located', or 'is temporally located' since there will always be individuals – such as numbers, properties, propositions, or possible worlds – which do not satisfy these predicates. Thus, we cannot take these predicates to be universal predicates, that is, predicates that apply to everything. Because the claim that everything exists is a logical and necessary truth, the existence predicate, as a matter of logic and necessity, is a universal predicate. Because it is not a matter of logic and necessity that the predicates 'is causally efficacious', 'is spatially located', and 'is temporally located' are universal predicates, and because the existence predicate is a universal predicate, as a matter of logic and necessity, these predicates cannot be taken to be adequate understandings of the existence predicate within philosophical logic. Having argued that the existence predicate is best understood as logical existence for the purpose of philosophical logic, I now turn to the effect this understanding has on the plausibility of necessary existence.

THE IMPLICATIONS OF LOGICAL EXISTENCE FOR NECESSARY EXISTENCE

In Chapter 5, I make a case for accepting necessary existence partly on the basis of understanding the existence predicate as governed by the Existence Principle. But for now, it is enough to recognise that if the existence predicate is taken to have some non-logical meaning, a meaning not governed by the Existence Principle, then necessary existence is clearly problematic. For example, if the existence predicate is

taken to mean 'being spatially located', then necessary existence is highly counter-intuitive since it seems that I am not such that I am necessarily spatially located. Similarly, if the existence predicate is taken to mean 'is causally efficacious', then, again, necessary existence is highly counter-intuitive since it seems that I am not such that I am necessarily causally efficacious. These examples generalise: for any non-logical sense of the existence predicate, necessary existence is highly counter-intuitive. That this is so should not be surprising since it seems that every object could fail to be spatially located, causally efficacious, temporally located, or perceived.

On the other hand, if the Existence Principle governs the existence predicate, is it so counter-intuitive to suppose that everything is a necessary existent? Or equivalently, is it clearly counter-intuitive to suppose that everything is a necessary logical existent? In this context of judging the intuitive merits of logical existence, we can say that to logically exist is *to be something*. Rephrasing our question using this meaning of logical existence yields: Is it clearly counter-intuitive to suppose that everything is necessarily something? This is far from obviously counter-intuitive.

Remember that an individual's being something does not entail that the individual is spatially located, or that it is causally efficacious, and so forth. Consequently, if 'exists' is understood logically, as 'is something', the intuitive difficulties with necessary existence, where 'exists' is understood non-logically, do not arise. But given that I am only contingently spatially located and causally efficacious, if I am necessarily something, what sort of something would I be in a world where I am neither spatially located nor causally efficacious? On the modal metaphysics I develop in Chapter 3, I would be a contingently non-concrete something, or more specifically, a possible person. Further exploration of this view

must wait until the following chapter. Thus, if the existence predicate has its logical meaning, necessary existence is not clearly counter-intuitive.

OBJECTIONS TO THE EXISTENCE PRINCIPLE

If the Existence Principle is not true, then my arguments for necessary existence do not even get off the ground. So it is fundamentally important for me to present a convincing case for this principle. I have already presented the positive case for the Existence Principle: (i) it follows from the logical truth that everything exists, (ii) if we let our existence predicate be governed by the Existence Principle, then we are sure to be engaging in genuine ontological disputes; (iii) the Existence Principle gives the most radical sense of non-existence; (iv) the Existence Principle has some intuitive support; and (v) the non-logical senses of 'exists' are not adequate meanings of the existence predicate for the purposes of philosophical logic. I grant that none of these reasons, individually or collectively, present a conclusive case for the Existence Principle apart from a convincing response to the many objections that are routinely made to this principle. It is to these objections that I now turn. The first set of objections has to do with the kinds of individuals one can argue exist if the Existence Principle is true, and the second set of objections has to do with the form of the Existence Principle.

It may seem that the Existence Principle lets down the floodgates and allows a deluge of individuals to exist, individuals whose existence is supposedly counter-intuitive. Consider fictional characters. An objector may say,

> Sherlock Holmes is a detective. Therefore, by the Existence Principle Sherlock Holmes exists. But Sherlock Holmes does not exist since

> Sherlock Holmes is a fictional character and fictional characters do not exist.[31]

The case of fictional characters is a delicate one.[32] There are two distinct contexts where the names of fictional characters are used. The first context occurs in stories where we read about the exploits of characters such as Holmes, and we come across sentences such as 'Sherlock Holmes is a detective'. The second context occurs in literary criticism where we discuss authors and their creations, and we come across sentences such as 'Sherlock Holmes is Arthur Conan Doyle's most interesting character'. Because these contexts are so different, we should not expect that the same strategy for dealing with the apparent counter-example would be the same in both contexts.

In the first context, in the stories themselves, it is not at all clear that the sentences of the stories express propositions. On this view, stories are exercises in make-believe where the sentences composing the narrative are not declarative sentences. These sentences are merely forms of pretence. On this view, sentences used in an episode of storytelling do not express commitments for how things stand in the world. As such, these sentences do not possess content susceptible to a favourable or unfavourable judgement. In this way, sentences of fiction in the context of storytelling do not express propositions. To think that these sentences express

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[31] The objector may be in agreement with the following comments made by one of the characters of Iris Murdoch's novel, *The Sea, The Sea*:

> 'The trouble with you Charles, is that basically you despise women, whereas I, in spite of some appearances to the contrary do not.'
>
> 'I don't despise women. I was in love with all of Shakespeare's heroines before I was twelve.'
>
> 'But they don't exist, dear man, that's the point. They live in the never-never land of art, all tricked out in Shakespeare's wit and wisdom, and mock us from there, filling us with false hopes and empty dreams. The real thing is spite and lies and arguments about money.' (Murdoch 1978, p. 163.)

[32] My response to this apparent counter-example is indebted to Kripke 1973 and van Inwagen 1977a. For further developments of this view, see van Inwagen 1983a, Thomasson 1996, Salmon 1998, Thomasson 1999, and van Inwagen 2000.

propositions is to misunderstand the nature of fiction. Thus, the sentence 'Sherlock Holmes is a detective' uttered in context of story-telling does not express a proposition, and neither does the sentence 'Sherlock Holmes does not exist'. In order for this apparent counter-example to be genuine, it must be the case that Sherlock Holmes is a detective and Sherlock Holmes does not exist. But because 'Sherlock Holmes is a detective' and 'Sherlock Holmes does not exist' do not express propositions in the context of storytelling, we cannot conclude that we have a genuine counter-example to the Existence Principle in this context.

Now consider the second context, the context of literary criticism. In this context it is fairly natural to claim that the sentence 'Sherlock Holmes is Arthur Conan Doyle's most interesting character' expresses a true proposition. What is this proposition about? It is about an abstract mental artefact created by Arthur Conan Doyle named 'Sherlock Holmes'. It is a consequence of this account that it is impossible for Sherlock Holmes to be a detective. Mental artefacts are not the kind of thing that can be detectives. Thus, the apparent counter-example to the Existence Principle fails in this context. As these are the only two contexts relevant to the Existence Principle, sentences containing the names of fictional characters do not pose a difficulty for the Existence Principle, and the same strategy can handle sentences containing the names of mythical characters.

The strategy must be modified slightly to deal with sentences containing names of theoretical entities of false scientific theories. Consider the name 'Vulcan'. Urbain Le Verrier constructed a theory postulating the existence of a planet he named 'Vulcan' whose existence was intended to explain the anomalies of Mercury's orbit. Le Verrier's theory is false, and it appears to present a problem for the Existence Principle. Consider the following apparent counter-example to this principle.

> Vulcan is a planet. Therefore, by the Existence Principle Vulcan exists. But Vulcan does not exist since Vulcan is a theoretical entity of a false scientific theory, and entities of this kind do not exist.

Again, there are two contexts in which sentences containing the names of theoretical entities of false scientific theories appear. The first context occurs in the theories themselves, and the second context occurs in the discussion of these theories.

In the first context, it would not be plausible to claim that these sentences do not aspire to express a truth-valued proposition as in the case of sentences containing fictional characters. Scientific theories are not forms of make-believe or pretence. Though it is not plausible to claim that the sentences of scientific theories do not aspire to express truth-valued propositions, it is plausible to suppose that sentences of scientific theories do not, in fact, express propositions unless they are true. On this view, because Le Verrier's theory is not true, 'Vulcan is a planet', as it occurs in his theory, does not express a proposition. Therefore, in the context of the theory, this apparent counter-example is not genuine. In the second context, the context of discussing Le Verrier's theory, the same account applies as the account given of sentences containing the names of fictional characters in literary criticism. In this context, 'Vulcan is a planet' is impossible because abstract mental artefacts are not the kind of thing that can be planets. Therefore, in this context, the apparent counter-example is not genuine, either. Consequently, sentences containing the names of theoretical entities of false scientific theories do not present a problem for the Existence Principle.

Now turning from the names of characters and theoretical entities, we need to take into account sentences containing the names of past, future, possible, and impossible individuals. It is widely thought that sentences about these individuals are

counter-examples to the Existence Principle. First, consider sentences that contain the names of past individuals. A past individual is an individual who was spatially located, or was causally efficacious, or was temporally located but who is no longer spatially located, causally efficacious, or temporally located. An objection to the Existence Principle can be formulated involving such individuals. The objection runs as follows.

> Socrates is a philosopher. Therefore, by the Existence Principle Socrates exists. But Socrates does not exist since Socrates is a past individual and past individuals do not exist.

In response to this objection, I accept that Socrates is admired, but I deny that Socrates does not exist. Remember that the sense of 'exists' at work here is the logical sense of 'exists', and it is by no means obvious that Socrates no longer exists in this sense. While it is clear that Socrates is no longer causally efficacious, no longer spatially located, and no longer temporally located, it is not at all clear that Socrates is no longer something. That Socrates does not logically exist cannot be taken as a datum of intuition that our logical laws must accommodate. On the other hand, the details of Socrates' logical existence are also not immediately clear. The metaphysics I give in Chapter 3 gives these details, making sense of the claim that Socrates logically exists now. But for now, Socrates is something, and this "something" is a past person, a person who once had a particular genetic constitution, and who was once concrete, but no longer has this constitution and is no longer concrete. Until I have presented this metaphysics, my response to this objection must remain incomplete. Before leaving this discussion, I note that on the metaphysics I give for Socrates' logical existence, his being a philosopher at the present time is

impossible because Socrates is not the kind of thing that can be a philosopher at the present.

A category of individuals closely related to past individuals is that of future individuals. A future individual is an individual who will live, or will be spatially located, or will be causally efficacious, from one time to another, but who does not yet live, or does not yet have spatial location, or is not yet causally efficacious. David Kaplan has attempted to name the first individual born in the twenty-second century, 'Newman-1'.[33] An objection to the Existence Principle can be formulated making use of these individuals.

> Say that some bizarre religious cult in California is awaiting the birth of Newman-1. In this case, Newman-1 is long awaited. Therefore, by the Existence Principle Newman-1 exists. But Newman-1 does not exist since Newman-1 is a future individual and future individuals do yet not exist.

My response to this objection is similar to my response to the objection from past individuals. While I accept that Newman-1 is long awaited, I deny that Newman-1 does not exist. Though Newman-1 is not yet born, he logically exists in the same manner in which Socrates logically exists. I spell out the details of the existence of such individuals in the following chapter. But for now, Newman-1 is a future person who at present is something, and when he is born, he will have a particular genetic constitution and have all the properties associated with being a person.

This same response applies to apparent counter-examples containing the names of possible individuals and impossible individuals. A possible individual is an individual who does not actually have spatial location, or temporal location, or have causal efficacy *but could have done so*. In addition to offering a method for singling

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[33] Kaplan 1969.

out a particular future individual, Kaplan has also offered a method for singling out a particular possible individual.[34] Take a specific sperm from an individual, say Wittgenstein, and a specific ovum from another individual, say Bette Davis, and, Kaplan claims, if these gametes had united, their union would have resulted in a specific individual, call this individual 'Pete'. Because Wittgenstein and Bette Davis did not actually have any children together, sentences involving 'Pete' appear to create a difficulty for the Existence Principle. Consider the following argument.

> Pete is a potential philosopher. Therefore, by the Existence Principle, Pete exists. But Pete does not exist because Pete was never born. Therefore, the Existence Principle is false.

In response to this objection, I accept that Pete is a potential philosopher, but I deny that Pete does not exist. Though Pete is neither spatially located nor causally efficacious, he logically exists. Pete is a possible person who is contingently non-concrete in this world. Again, I explore the metaphysics of the existence of possible individuals in the following chapter.

Turning to a different sort of objection, it might be thought that the predicate '$\neg E!t$' can be substituted for 'F' in the Existence Principle yielding the formula: $\neg E!t \vdash Et$. Recall, however, that I specified in the statement of the Existence Principle that 'F' can contain no initial operators, such as the negation operator. This restriction was made to bar just this sort of objection. Thus, the formula $\neg E!t \vdash Et$ poses no problem to the Existence Principle.

This response may seem to raise a further objection. It might be thought that my response relies on an ability we do not in fact have.

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[34] Kaplan 1973, pp. 516-517 n. 19.

> Take the sentences 'John is blind' and 'John is sighted'. These sentences express contradictory propositions. Now which sentence has the form *Fa* and which sentence has the form ¬*Fa*? There is no non-arbitrary way to make this judgement because there is no general criterion in natural language that determines the logical form of these sentences. If we cannot tell which sentence has the form *Fa* and which sentence has the form ¬*Fa*, we cannot tell which sentence entails John's existence by the Existence Principle. If we cannot tell which sentence has which logical form, the Existence Principle is of no use. This consequence points to a more general consequence: while the Existence Principle may be useful in formal languages where logical form is transparent, the Existence Principle is considerably less useful in natural languages where logical form is often opaque.

In response, I deny that either 'John is blind' or 'John is sighted' have the logical form ¬*Fa*. That is, these sentences are not contradictories, and they both of have the logical form *Fa*. In which case, both sentences entail that John exists by the Existence Principle.

SUMMARY

In response to a semantic argument against necessary existence, I have argued that 'exists' has many meanings, some appropriate for some branches for philosophy and others appropriate for other branches. For philosophical logic, the logical sense of 'exists', the sense of 'exists' governed by the Existence Principle, is the appropriate meaning of 'exists'. This is so because if we use the logical sense of 'exists', then we have theoretical control over the concept of existence, we are guaranteed to have genuine ontological disputes when we disagree over what exists instead of merely equivocating over 'exists', and 'non-existence' has its most radical sense for the logical sense of 'exists'. Finally, I answered some objections concerning different sorts of individuals that may be said to exist if the Existence Principle is true – namely, fictional, mythical, theoretical, past, future, and merely possible individuals.

In the next chapter, I use the logical sense of 'exists' in my responses to further objections to necessary existence. In Chapter 5 I make further use of this sense of 'exists' in a metaphysical argument for necessary existence. Apart from the logical meaning of 'exists', this argument, though valid, has no hope of being sound. So it is crucial to keep in mind that from now on, I am only interested in defending the claim that everything is a necessary (logical) existent.

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Further Arguments Against Necessary Existence

The work of the previous chapter was to rebut a semantic objection to necessary existence. This objection was embodied in the claim that 'exists' has some naturalistic meaning. On this meaning, necessary existence is highly counter-intuitive. But I argued that taking 'exists' to have this meaning is neither necessary nor desirable in the context of philosophical logic and modal metaphysics. In its stead, I proposed a different meaning of 'exists' that is appropriate for this context. On this meaning, the semantic objection does not render necessary existence clearly counter-intuitive.

This objection is one of the most prominent objections underlying the Moorean presumption in favour of contingent existence. But this objection by no means exhausts the objections that might be said to underlie this presumption. I give what I take to be those arguments in this chapter, and I give what I take to be the most plausible responses open to the defender of necessary existence. In what follows, I do not aim to convince the defender of contingent existence that her objections are faulty. My aim is a more modest one: I only show what responses are available to the defender of necessary existence in the face of these objections. I leave it to the next chapter to discuss what would be a convincing case for the adoption of the claims embodied in these responses. The aim of the remainder of the thesis is to make this case. I begin with the most venerable objection to necessary existence.

EXISTENCE IS NOT A LOGICAL PREDICATE

Russell writes, 'I think an almost unbelievable amount of false philosophy has arisen through not realizing what 'existence' means.'[1] Undoubtedly, he would view the present work as another grain of sand on the heap of false philosophy. This is so because he understands the semantics of the existence predicate in such a way as to remove the basis for asserting necessary existence. Without good reason for asserting necessary existence, it could hardly be supposed that it is true. I describe the view, namely, a particular view of the semantics of the existence predicate, that gives rise to this consequence.

Kant and Frege share this view of the semantics of the existence predicate. One way of explaining this view is that on this view, the existence predicate inherently attaches to a plural subject. For example, while the sentence 'tables exist' is meaningful, the sentence 'this table exists' is not, and the sentence 'tables exist' expresses the proposition that there are tables. In this way, 'affirmation of existence', according to Frege, 'is in fact nothing but the denial of the number nought.'[2] In Fregean terms, the sentence 'Tables exist' expresses the claim that the concept *table* is instantiated. It is therefore meaningless to assert of any particular object that it exists. On this view, then, sentences such as 'I exist' and 'Santa Claus does not exist' are without content. Russell puts this consequence in the following way: 'the actual things that there are in the world do not exist, or, at least, that is putting the matter too

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[1] Russell 1956, p.234.
[2] Frege 1953, §53 p. 65e.

strongly, because that is utter nonsense. To say that they do not exist is strictly nonsense, but to say that they do exist is also strictly nonsense.'[3]

The Kant-Frege-Russell view does not immediately pose a problem for necessary existence. This claim asserts that every individual is a necessary existent, and no claim is made about any particular individual. Thus, one could consistently adopt the Kant-Frege-Russell view of the semantics of the existence predicate while adopting necessary existence. Russell makes the distinction between the meaningfulness of the sentence 'All things in the world exist' and the meaninglessness of the sentence 'This exists' in the following passage.

> You get into confusion through language, because it is perfectly correct thing to say 'All the things in the world exist', and it is so easy to pass from this to 'This exists because it is a thing in the world'. There is no sort of point in a predicate which could not conceivably be false. I mean, it is perfectly clear that, if there were such a thing as this existence of individuals that we talk of, it would be absolutely impossible for it not to apply, and that is the characteristic of a mistake.[4]

The reasoning Russell uses in this passage bears discussion, but I note only that just as 'All things in the world exist' is meaningful on the current view, so is necessary existence, which is synonymous with the sentence 'All things in the world exist necessarily'.

Although this view does not threaten necessary existence, it does threaten all of the arguments I give for this view. This is so because these arguments rely on premises asserting the existence of a particular individual: the metaphysical argument of Chapter 5 relies on premises asserting my existence and the formal arguments of Chapter 6 rely on premises asserting the existence of an individual assigned to the free

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[3] Russell 1956, p. 233.
[4] Russell 1956, p. 241.

variable denoted by 'x'. Thus, the Kant-Frege-Russell view of the semantics of the existence predicate is consistent with necessary existence, but this semantics is inconsistent with the premises of the arguments I offer for this view. Consequently, on this view, there is no reason to overturn the presumption against necessary existence. We should, therefore, deny necessary existence, or so the objector might argue.

I agree with the objector's contention that the Kant-Frege-Russell view of the semantics of the existence predicate together with a presumption of contingency over necessity leads to the denial of necessary existence.[5] Given this presumption of contingency over necessity, it is my task to argue against the Kant-Frege-Russell view. The Kant-Frege-Russell account of the semantics of the existence predicate has attracted a great deal of controversy and spawned a vast literature. I cannot hope to do justice to all of the arguments for and against this view. In order to characterise the view as fairly as possible, I have chosen the best arguments for the view.

It has been thought that the claim that the existence predicate applies to individuals entails such drastic consequences as the validity and soundness of the ontological argument. As this argument is surely either invalid or unsound, it is supposed, the existence predicate must not apply to individuals. Many have disputed this supposed entailment.[6] The simplest form of the ontological argument is the following:

> It is possible that there is a perfect being, that is, an individual who has all the perfections essentially. Necessary existence is a perfection. Therefore, there is a perfect being.[7]

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[5] This presumption is founded on a Humean account of possibility, which I discuss below as an independent objection to necessary existence.

[6] Mackie 1976 is one prominent example.

[7] For this simplified version of the ontological argument, I am indebted to van Inwagen 1998, reprinted in van Inwagen 2001, pp. 243-244.

Clearly, the Kant-Frege-Russell view would rule out the second premise because it is meaningless to predicate existence, necessary or otherwise, of any being in particular. Thus, on this view, the ontological argument is unsound because the conclusion does not follow from the first premise only, and the second premise is meaningless.

While it is clear that the Kant-Frege-Russell view is sufficient to block the deduction that there is a perfect being, it is by no means clear that this view is necessary to render this argument unpersuasive. This is so because the first premise could reasonably be challenged. It is not obvious that it is possible that there is a perfect being. The defender of the ontological argument generally assumes that this premise will be granted on the basis of a presumption of possibility. But it is not clear that this premise should be granted. Why should we assume that such a being is possible? If the objector to the argument is a non-Humean, she may very well not grant this premise.[8] Furthermore, there are arguments mimicking the ontological argument for the impossibility of God's existence, which is the denial of the first premise. Also, it is unclear that we could ever know the truth-value of this premise.[9] Such modal knowledge, it has been argued, is beyond our reach because our modal judgements are as unreliable as perceptual judgements of distance. While I cannot enter into a full discussion of the persuasiveness of the ontological argument here, it will serve my purposes if I have pointed out that there are other ways of resisting the ontological argument than the adoption of the Kant-Frege-Russell view of the semantics of the existence predicate.

I now deal with Russell's argument contained in the quotation above. Russell claims that a necessary condition for a predicate's applying to individuals is that it be possible for it not to apply to an individual. If Russell is correct, then not only does

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[8] For such an argument, see Adams 1988.
[9] For such an argument, see van Inwagen 1977b and van Inwagen 1998.

the existence predicate not apply to individuals but also the self-identity predicate does not apply to individuals because if it does, then it is impossible for the self-identity predicate to fail to apply to every individual. Thus, on this view just as it is meaningless to suppose that I exist or fail to exist, it is also meaningless to suppose that I am self-identical or fail to be self-identical. While we may suspend our intuition that the claim that I exist is true, and therefore, meaningful, it is asking too much to suspend our intuition that the claim that I am self-identical is true, and therefore, meaningful. The Kant-Frege-Russell view is now diverging quite sharply from our metaphysico-logical intuitions, and strong theoretical backing must support this divergence. But such theoretical backing is missing because philosophical disaster is not incurred by the rejection of the Kant-Frege-Russell view, as this view supposes. So there seems to be no good reason to accept this view.

Having dealt, very briefly, with the most prominent arguments for the view, I now consider arguments against the view. First, it should be noted that the Kant-Frege-Russell view is at odds with the linguistic data. Consider the sentence 'This table is red' and 'This table exists'. Pre-theoretically, it seems that 'is red' plays the same role in the first sentence as 'exists' plays in the second, namely, as a predicate applying to the referent of 'this table'. Furthermore, as noted in the previous paragraph, intuitively the sentence 'This table exists' expresses a proposition capable of being true. These pre-theoretic data serve to create a presumption against the Kant-Frege-Russell and thus place the burden of proof on the defender of this view. As this burden has not been met, or so I claimed above, I could conclude that this view does not pose a threat to the arguments for necessary existence. But just to be safe, I note some prominent arguments against it.

G. E. Moore made one of the first important objections to this view. He argued that if the sentence 'This might not have existed' is meaningful, then so are the sentences 'This exists' and 'This does not exist'.[10] Moore's argument is as follows.

> 'This might not have existed' is a sentence constituted in the following way: the possibility operator is applied to the sentence 'This does not exist'. We now assume that a sentence is meaningful only if its constituent parts are meaningful. If 'this' picks out a concrete individual, then the sentence 'This might not have existed' is true. If 'This might not have existed' is true, then it is meaningful. Therefore, 'This does not exist' is meaningful. 'This does not exist' is constituted in the following way: the negation operator is applied to the sentence 'This exists'. Therefore, 'This exists' is meaningful.

One assumption of Moore's argument that appears particularly vulnerable is the assumption that the sentence 'This might not have existed' must be interpreted as the sentence 'It is possible that this does not exist'. This interpretation is neither desirable nor compulsory. It is not desirable because it is very far from the surface grammar of the sentence. We could take the surface grammar of the sentence seriously and take 'might' as a predicate modifier in the sentence 'This might not have existed' rather than an initial sentence operator.[11] In this way, Moore's interpretation of 'This might not have existed' is not compulsory.

But we do not need to begin the argument with the assumption that the sentence 'This might not have existed' should be interpreted as 'It is possible that this does not exist'. We could begin the argument by assuming that 'It is possible that this does not exist' expresses a true proposition, an assumption that appears to enjoy some intuitive support if 'this' refers to a concrete particular. If 'It is possible that this does not exist' expresses a true proposition, then this sentence is meaningful. If this sentence is meaningful, then 'This does not exist' is meaningful. Given that 'This

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[10] Moore 1936.
[11] This response is explored in Wiggins 1995.

does not exist' should be interpreted as 'It is not the case that this exists', we can now conclude that 'This exists' is meaningful. Therefore, if 'It is possible that this does not exist' is meaningful, then 'This exists' is meaningful. Consequently, the proponent of the Kant-Frege-Russell view of the semantics of the existence predicate must deny that 'It is possible that this does not exist' is meaningful.

There is an argument related to Moore's argument that has also been influential. Many take the claim that everything is such that it might not have existed to support the intuition that there might have been nothing. Commenting on this inference, D. M. Armstrong writes,

> All philosophers are perfectly aware that this may be (doxastic 'may be') an invalid line of reasoning[12] . . . But, I think, many of these philosophers have also thought that, in default of some special reason for thinking that the move from 'each thing might not have existed' to 'nothing might have existed' is invalid, it is reasonable to assume it *is* valid.[13]

Thus, if we accept the Kant-Frege-Russell view, we must reject this inference. While it should be clear that I have no interest in defending this conclusion or the validity of this inference, what I think the seductiveness of this (invalid) inference demonstrates is that the claim that the existence predicate applies to individuals as opposed to classes is deeply ingrained in our pre-theoretic modal intuitions. Thus, this argument helps to demonstrate the depth of the presumption against the Kant-Frege-Russell view.

There are further sentences that this view deems meaningless that we would ordinarily think are meaningful. J. L. Mackie offers the following sort of example:

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[12] An informal counter-model to this claim is the following. Say that the set $\{w_1, w_2, w_3\}$ contains all the worlds. Let w_1 contain two individuals a and b. Assume that w_1 and w_2 are possible relative to w_3. Let w_2 contain only a and let w_3 contain only b. Thus, in w_1 everything is such that it might not have existed, but it is not possible that there is nothing.

[13] Armstrong 1989, p. 24.

'Bush does not know that David exists'[14] If 'David exists' is meaningless, then so is 'Bush does not know that David exists'. But it seems obvious that Bush does not know that I exist. The Russellian response to this example is to interpret the sentence 'Bush does not know that David exists' as the sentence 'Bush does not know that there is any such person as David'. But this interpretation does not capture the thought that *I* exist, no matter how particularly I am described. In response, the Russellian might attempt a further interpretation in response to this example. She might interpret the sentence 'Bush does not know that David exists' as 'Bush does not know that there is any such person as me'. On a coarse-grained approach to the expression of propositions, the sentence 'Bush does not know that there is any such person as me', as uttered by me, expresses the same proposition as the sentence 'Bush does not know that there is any such person as David'. In which case, we are back to the previous interpretation.

Now on a fine-grained approach to the expression of propositions, 'Bush does not know that there is any such person as me', as uttered by me, expresses a different proposition from that expressed by the sentence 'Bush does not know that there is any such person as David'. Consequently, on this approach 'There is any such person as me', as uttered by me, expresses a different proposition from 'There is any such person as David'. Because the proposition expressed by 'There is any such person as me', as uttered by me, is a *de se* proposition, that is, a proposition about me, it is argued that only I can know this proposition.[15] This is so because the indexical 'me' is essential to this proposition, and this indexical refers to me only in my mouth.[16] Accordingly, on a fine-grained approach to propositions it is true that Bush does not

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[14] Mackie 1976, p. 249.
[15] The '*de se*' terminology is due to David Lewis. See Lewis 1979.
[16] For more on this argument, see Perry 1979.

know the proposition expressed by 'There is any such person as me', as uttered by me, which seems to give the right result for the Russellian.

But not only is it true on this approach that Bush does not know the proposition expressed by 'There is any such person as me', as uttered by me, it is also true on this approach that he does not know the proposition expressed by 'There is any such person as me', as uttered by his wife, or one of his children, or anyone else other than himself, which is a highly counter-intuitive result. Thus, the Russellian does not appear to have an adequate way to account for the truth of claims expressed by sentences such as 'Bush does not know that there is any such person as me', as uttered by me, and sentences such as 'Bush does not know that there is any such person as David'. Accordingly, the Kant-Frege-Russell view does not allow us to represent some fairly secure linguistic, metaphysical, and logical intuitions. As there is no good reason to accept this semantics, as I argued above, we should reject it. Consequently, it poses no threat to necessary existence.

CONCEIVABILITY

David Hume has influenced our modal thinking greatly. One aspect of his influence has already been mentioned: it is widely thought that contingency is to be preferred over necessity. I will return to this methodological point later as a separate objection to necessary existence. For now I consider the other aspect of his influence: it is widely thought that conceivability is a guide to possibility. Hume states the implication of this claim for necessary existence in the following passage.

> Nothing is demonstrable, unless the contrary implies a Contradiction. Nothing that is distinctly conceivable, implies a Contradiction. Whatever we conceive as existent, we can also conceive as non-

> existent. There is no Being, therefore, whose Non-existence implies a Contradiction. Consequently, there is no Being, therefore, whose existence is demonstrable.[17]

In this passage, Hume's aim is to offer a counter-argument to the ontological argument, which presumes to show that God exists. But Hume's argument clearly generalises to an attack on necessary existence. We can state precisely the objection to necessary existence in the following way.

> We can distinctly conceive of an individual existing only if we can distinctly conceive of that individual failing to exist. We can distinctly conceive of an individual failing to exist only if that individual is a contingent existent. We can conceive of our own existence and all the other objects of our experience. Therefore, we are contingent existents, along with all the other objects of our experience. Consequently, necessary existence is false.

The first claim could plausibly be denied in the following way: though we can distinctly conceive of the existence of a particular number, we cannot conceive of its non-existence. This is so because it is part of the nature of a number to be a necessary existent. With this response, the objector and the defender are at an impasse. It appears that neither can provide a convincing counter-argument to the other.

The objector may then revise the argument by omitting the first claim, and assume that the second claim does not require further justification. In response, the defender of necessary existence can distinguish two kinds of conceivability and two kinds of possibility and argue that the first kind of conceivability is no guide to the relevant kind of possibility and that the second kind of conceivability, though it is a guide to the relevant kind of possibility, does not entail the conclusion that I might not have existed.

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[17] Hume 1976, Part 9, lines 10-15, p. 216.

There are two sorts of conceivability that are relevant to Hume's argument. The first kind of conceivability is a conceivability based on ignorance. On this sort of conceivability, I can conceive of water not being H_2O. This kind of conceivability is a guide to the first kind of possibility, namely, doxastic possibility. Doxastic possibility is the sort of possibility governed by what I think is possible. On this understanding of possibility, it is doxastically possible that water is not H_2O. Though conceivability based on ignorance is a guide to doxastic possibility, this does not threaten necessary existence because necessary existence is a claim concerned with metaphysical necessity and not doxastic necessity. Metaphysical necessity is that which must be the case, while doxastic necessity is what I think must be the case. Now conceivability based on ignorance is no guide to metaphysical possibility. For example, if I do not know the essential properties of a particular object, then I can conceive of it lacking those properties, on this usage of 'conceive', but it is metaphysically impossible for an object to lack its essential properties.

There is a second kind of conceivability, which the defender of necessary existence can concede is a guide to metaphysical possibility. On this kind of conceivability, if the conceiver is attempting to determine the possibilities for a particular object, then she must know enough about the object to know that she is thinking about *that* object. This sort of knowledge must involve knowledge of the object's essential properties. Now when I am conceiving of my non-existence, on this usage of 'conceive', I am not conceiving of my failing to be a *logical* existent, where I fail to be something. Rather, when I am conceiving of myself as non-existent, what I am conceiving of is my failing to be a *non-logical* existent, where I fail to be spatially located, temporally located, and causally efficacious. That is, when I conceive of my

non-existence, I am conceiving of my being non-concrete. I explain this response more fully in my discussions of the next four objections to necessary existence.

ESSENTIALITY OF CONCRETE EXISTENCE

I begin this next set of objections with an objection reminiscent of the previous chapter.

> I essentially exist. Necessarily, everything that exists is concrete. Therefore, I am essentially concrete. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

In this argument, 'concrete' serves to abbreviate whatever naturalistic property the objector desires. Nothing turns on the particular property chosen. It should be evident that the premise to deny in this argument is the second: necessarily, everything that exists is concrete. The aim of the previous chapter was to give an argument for this denial, and this argument is independent of any view of necessary existence. Thus, I take it that this argument poses no threat to necessary existence.

ESSENTIALITY OF CONCRETENESS

The objector may happily concede this point, remarking that the conclusion, I am essentially concrete, does not require any argument to support it. This claim, the objector may maintain, is one of those Moorean intuitions anchored in the very concept of concreteness. Thus, the objector may maintain the following argument.

> I am concrete. If am concrete, then I am essentially so. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

A proper response to this argument requires a brief discussion of the abstract/concrete distinction. It is commonly thought that the abstract/concrete distinction is of fundamental importance to metaphysics. It is widely agreed that chairs, tables, and planets are concrete objects, while propositions and properties are abstract objects. Though we seem to agree on what counts as a concrete object and what counts as an abstract object, we do not agree on why we agree. A satisfactory analysis of the distinction between the abstract and the concrete has proved elusive. It might be conjectured that just as there is no adequate conceptual analysis of causation, meaning, and knowledge, there is no adequate conceptual analysis of the distinction between the abstract and the concrete.

Though there appears to be no satisfactory analysis of this distinction on the horizon, it is widely agreed that this distinction is exhaustive and exclusive, and necessarily so. It is generally agreed that everything is such that it is necessarily concrete or it is necessarily abstract and not both. In order to rebut the above objection, the defender of necessary existence must deny this claim and propose a metaphysics on which concrete objects may be contingently concrete. Accordingly, concrete objects may be non-concrete, and non-concrete objects may be concrete.[18] On this metaphysics, the abstract/concrete distinction would be better termed 'the non-concrete/concrete distinction', which is exhaustive and exclusive, and the term 'abstract' should be reserved for the necessarily non-concrete objects, such as properties, propositions, and possible worlds.

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[18] Such a metaphysics has been proposed by Bernard Linsky and Edward Zalta and also by Timothy Williamson. See Williamson 1990b, Linsky and Zalta 1994, Linsky and Zalta 1996, Williamson 1998, Williamson 1999a, Williamson 1999b, Williamson 2000, and Williamson 2002.

Having argued that I am contingently concrete, consider a world where I am non-concrete. Because I am not concrete in this world, I am not a person, I am not human, I lack the particular genetic constitution I have in the actual world, I lack a body, and I lack all those other properties I actually have that depend on my being concrete. So what am I in this world where I am non-concrete? I am a possible person in such a world, and I am such that I could have been human, had a body, and had the particular genetic constitution that I have in the actual world.

An analogy with tense may be helpful here. Socrates is no longer concrete, and at the present, he is a past person who was a human, had a body, and had the particular genetic constitution that he had when he lived. In the same way that Socrates is a past person at present, I am a possible person at worlds where I am non-concrete. Similarly, Newman-1, the first child born in the twenty-second century, is not concrete yet, and at the present time, he is a future person who will be human, will have a body, and will have the particular genetic constitution that he will have when he lives.

Finally, just as I am a contingently concrete individual, Pete, the possible child of Wittgenstein and Bette Davis, is a contingently non-concrete individual. In worlds in which Pete is concrete, he is a person having a particular genetic constitution, spatial location, temporal location and causal efficacy. All these individuals, Socrates, Newman-1, Pete, and I share the property of being something in the actual world and all possible worlds.

NATURAL KINDS

The objector may try to argue that I am essentially concrete by way of arguing that I have a certain property essentially, and having this property entails being concrete. A particularly pressing form of this argument comes from considerations of natural kinds. One such form is the following.

> I am essentially human. Being human entails being concrete. Therefore, I am essentially concrete. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

Many philosophers find the claim that I am essentially human a compelling claim. However, it must be denied if necessary existence is to be plausibly maintained. We can still maintain a form of the claim that is consistent with necessary existence, namely, necessarily, if I am concrete, then I am human.[19] I do not think that revising the claim that I am essentially human to the claim that necessarily, if I am concrete, then I am human is inconsistent with the intuition supporting the claim that I am essentially human. But if someone thinks that this revision is inconsistent with the intuition, then the intuition must be abandoned.

I favour the revision, and not the abandonment, of this intuition on grounds independent of necessary existence. The reason for revising this intuition is that it conflicts with another, more secure intuition. Descartes famously put this intuition forward in the following passage.

> I am, then, in the strict sense only a thing that thinks; that is, I am a mind, or intelligence, or intellect, or reason – words whose meaning I have been ignorant of until now. But for all that I am a thing which is real and which truly exists. But what kind of a thing? As I have just said – a thinking thing.

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[19] Williamson proposes this revision in Williamson 1998.

> What else am I? I will use my imagination. I am not that structure of limbs which is called a human body. I am not even some thin vapour which permeates the limbs – a wind, fire, air, breath, or whatever I depict in my imagination; for these are things which I have supposed to be nothing. Let this supposition stand, for all that I am still something.[20]

Plantinga interprets this argument as an argument from the claim that I could have existed without having a material body to the claim that I am actually immaterial.[21] Plantinga notes that this argument is invalid. He attempts to repair it by adding the premise that anything that is immaterial is essentially so, and anything that is material is essentially so. Thus, the argument is now:

> It is possible that I am immaterial. Anything that is immaterial is essentially so, and anything that is material is essentially so. Therefore, I am actually immaterial.

While this argument is valid, in the presence of an S5 modal logic where every world is possible relative to every other world, a similar argument for my being actually material is also valid.

> It is possible that I am material. Anything that is immaterial is essentially so, and anything that is material is essentially so. Therefore, I am actually material.

The conclusion that I am actually material is arguably supported more by intuition than the premise that I am possibly immaterial because I am actually material. It is difficult to adjudicate which intuition wins out if there is a conflict. But there need be no conflict. Conflict only arises with the presence of the claim that anything that is

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[20] Descartes 1986, Meditation II.27, p. 18. Descartes supports the premise that he is possibly immaterial by claiming that he can imagine this possibility. Presumably, Descartes holds that if he can imagine a situation in which this claim is true, then it is possible. Clearly, I cannot appeal to this way of supporting this premise as I have previously denied the reliability of the method of imagination for delivering modal truths. Because of this denial, I must accept this premise as an independent intuition, unsupported by argument.

[21] Plantinga 1974, pp. 66-67.

immaterial is essentially so and anything that is material is essentially so. It is this claim that must be denied. Just as (non)concreteness is not a property had essentially if had at all, so (im)materiality is not a property had essentially if had at all. Thus, I can accept the initial premise of the first argument, that I could have existed without having a material body, and at the same time, I can accept the conclusion of the second argument, that I am actually a concrete, material individual. What is important for present purposes is that if we assume that being a human means being an embodied human, then the Cartesian intuition implies that I am not essentially human.[22]

Another objection along these lines is due to Charles Hartshorne. He asks, 'Who doubts that contingency is inherent in all ordinary predicates? To be a man is to exist, if at all, without logical or conceptual necessity. How could there be necessity in this case?'[23] I take it that Hartshorne is asserting that being human entails being contingent. If this is so, then I deny this entailment. As Hartshorne gives no argument for this entailment, there are no arguments to refute. The reasons for denying Hartshorne's claim are the four arguments I give for necessary existence in Chapters 5 – 6 and their defence in Chapters 7 – 12.

Though the objection from my supposedly being essentially human fails, another objection along the same lines may be thought to be successful. This objection is based on the supposed necessity of origin.

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[22] There are further, theological grounds for denying that humans are essentially human. Prior to God's becoming human in Christ, the second person of the Trinity, the Son, was not human. But at the incarnation, the Son became human. Therefore, the Son gained the property of being human. If humanity is an essential property, then the Son could not gain this property. Therefore, either the Son did not become human or humanity is not an essential property. Clearly the first disjunct cannot be accepted by Christians. Therefore, Christians must deny that humanity is an essential property. Christian philosophers who accept this conclusion include Plantinga, Davis, Morris, and Swinburne. See Plantinga 1974, Davis 1983, Morris 1986, and Swinburne 1994. I do not emphasise this line of argument because it is not at all obvious that the incarnation possibly, let alone actually, occurred.

[23] Hartshorne 1966, p. 91.

THE NECESSITY OF ORIGIN

A variation on the objection from natural kinds comes from the necessity of origin. Having the particular origin I do have is essential to me, and having this origin entails being concrete, or so the objector might argue. An argument embodying this thought appears below.

> I essentially have the genetic structure that I actually have. Having a genetic structure entails being concrete. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

Just as the defender of necessary existence must deny that I am essentially human, she must also deny that I essentially have the genetic structure that I actually have. Again, there are two options open to the defender: either revise the claim so that it is consistent with necessary existence or deny the claim outright. On the first option, the defender can consistently accept that I have the genetic structure that I actually have in all the worlds in which I am concrete. That is, she can accept that necessarily, if I am concrete, then I have the particular genetic origin I actually have. On the second option, the defender of necessary existence can claim that no version of the necessity of origin is true: I could have had a genetic origin other than the one I actually have. The most plausible option here is again to revise the intuition consistently with necessary existence. The argument for this revision is the same as the argument that I am not essentially human. But given this revision, a further problem might be raised. I turn now to the problem of individuation.

INDIVIDUATION

Even if the defender of necessary existence can successfully answer the objections concerning concreteness, it appears that the defender's characterisation of what I am in worlds in which I am non-concrete poses another problem, namely, that of individuating me from all other possible persons at such worlds. The apparent problem can be stated in the following way.

> The genetic structure I actually have individuates me in all the worlds where I am concrete. Assuming that I exist in a possible world where I am non-concrete, I do not have a genetic structure in these worlds. There is no further property that individuates me in worlds where I am non-concrete. Without such an individuating property, that is, a property that only I could have had, I do not exist. Therefore, contrary to assumption, I exist only in worlds where I am concrete. Therefore, I am essentially concrete. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

The defender of necessary existence has two options here. On the first option, she can claim that in worlds in which I am non-concrete I have the modal property of being such that necessarily, if I am concrete, then I have the particular genetic constitution I have in the actual world. If modal properties are allowed to individuate me in these worlds, then this property individuates me in these worlds because no one else but me could have the particular genetic constitution I have in the actual world.[24] But it is likely that the objector would not allow for modal properties, such as being such that I would have had a particular genetic constitution if I were actual, to individuate me in worlds in which I am non-concrete. If this property is disallowed, as I suspect it

[24] Strawson seems to think that the property of having been a particular person individuates a past person. He writes, 'The concept of a person is logically prior to that of an individual consciousness. The concept of a person is not to be analysed as that of an animated body or of an embodied anima. This is not to say that the concept of a pure individual consciousness might not have a logically secondary existence, if one think, or finds, it desirable. We speak of a dead person – a body – and in the same secondary way we might at least think of a disembodied person. A person is not an embodied ego, but an ego might be a disembodied person, retaining the logical benefit of individuality from having been a person.' Strawson 1959, p. 103.

would be, then the defender of necessary existence must adopt the second approach, which is to accept that I have no individuating properties in worlds in which I am non-concrete.

If I have no individuating property at these worlds, then the demand for individuation must be rejected. In rejecting the demand for individuation, it is claimed that identity is a primitive relation that does not require grounding in properties that do not involve identity. One could reject this demand by claiming that I have the property of being me in all possible worlds. The property of being me is sometimes referred to as my 'thisness' or my 'haecceity'. Thus, my thisness, or haecceity, is what individuates me in all possible worlds. The inability to individuate a contingently non-concrete object by properties not involving the identity of that particular object may be considered a cost of the metaphysics I have presented. This would only be counted a cost by those who insist that the identity relation must be grounded in properties not involving identity, and it is not at all obvious that the identity relation must be so grounded. This answer may seem to raise another problem, namely, the problem of bare existents.

BARE EXISTENCE

In worlds in which I am non-concrete, the only atomic property I have is my thisness. But it might be objected that I must instantiate an atomic property, other than my thisness, in any world in which I exist. In effect, there cannot be bare existents. So I am essentially concrete after all, or so the objection goes. This objection can be put more precisely in the following argument.

> To exist is to instantiate an atomic property. I instantiate atomic properties only in worlds in which I am concrete. Therefore, I exist only in worlds in which I am concrete. If necessary existence is true, then I am necessarily concrete. But I need not be concrete. Therefore, necessary existence is false.

This objection is really another form of the 'existence is not a predicate' objection, and the premise to deny is the first: an individual can exist without instantiating any atomic property, other than existence and its thisness, of course. The reasons for denying this premise are the same as in the 'existence is not a predicate' objection, and I will not repeat the arguments here. Having dealt with the most prominent metaphysical and semantic objections to necessary existence, I turn now to methodological objections embodied in four razors: one due to Hume and three due to Ockham.

HUME'S RAZOR

I turn first to a principle termed 'Hume's Razor', which 'tells us not to multiply necessities without good reason'.[25] This presumption in favour of contingency can be formulated into an apparently pressing objection to necessary existence. This objection can be put in the following argument.

> Necessary truths should not be multiplied without good reason. There is no good reason for accepting necessary existence. Therefore, necessary existence should be denied.

The defender of necessary existence can make a quick reply to this objection. She can accept Hume's razor while consistently claiming that the arguments for necessary existence provide sufficient reason for overcoming the presumption against necessary

[25] I borrow the term 'Hume's Razor' and its formulation from Peter Forrest. See Forrest 2001, p. 93.

claims. But perhaps a better reply is possible, one that does not grant that there should be this presumption in favour of contingency.

Adams has argued against this presumption. If we do favour contingency over necessity, then we should agree that the following claims are true.[26]

> I could have been born in the 13th century.
>
> Phenomenal colors could be seen which we do not see, replacing orange between red and yellow on a possible visual spectrum.
>
> Bodies could have existed without any minds ever existing.
>
> Minds could have existed without any bodies ever existing.
>
> Travelling to the past in a time machine is metaphysically, if not causally possible.

These claims are all highly contentious claims. It does not seem to be good philosophical methodology to settle the dispute simply by invoking Hume's Razor and declaring them to be true.

Given that invoking Hume's Razor to settle disputes of this sort is not appropriate, why does this principle appear to be so attractive? Adams claims that when we approach modal issues, we experience

> genuine puzzlement about the extent of possibility and necessity. And this puzzlement undoubtedly arises in part from the limitations of our understanding of the nature and grounds of possibility and necessity.[27]

What should we do in the face of this puzzlement? Adams writes that a presumption in favour of contingency over necessity would be 'an unreasonable prejudice'.[28] Adams advises agnosticism in the face of this puzzlement. There should be no

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[26] Adams lists these claims in Adams 1988, p. 27.
[27] Adams 1988, p. 28.
[28] Adams 1988, p. 28. If the term 'modalism' did not already refer to a philosophical position, we might term a prejudice in favour of one modality over the other as 'modalism'.

presumption either way on Adams's view. These presumptions, Adams writes, 'should normally be replaced by broader theoretical considerations in dealing with metaphysical issues about modality'.[29] Thus, on Adams's view, we should deny that there is any presumption for or against necessary existence. If the arguments for necessary existence are deemed to be sound, these should provide the theoretical considerations needed to substantiate necessary existence. If they are thought to be unsound, we should return to agnosticism in this area.

While Adams presents a compelling case against Hume's Razor, and, therefore, the basis for a refutation of this objection to necessary existence, I think it is difficult to deny the intuitive plausibility of Hume's Razor. In this case, my response to the objection is the quick reply noted above: the arguments for necessary existence provide good reason for overturning the presumption against it.

OCKHAM'S RAZORS

Having granted that Hume's Razor sets up a presumption against the truth of necessary existence, I come to three further principles that might be thought to set up similar presumptions. These principles are versions of Ockham's razor, which tells us not to multiply entities beyond reason. The versions of this principle that are of interest are: kinds of entities should not be multiplied beyond reason, the number of entities should not be multiplied beyond reason, and the number of entities actually existing should not be multiplied beyond reason.[30] Each of these three principles might be thought to provide the basis for an objection to necessary existence. I deal with the principles in turn.

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[29] Adams 1988, p. 29.
[30] Forrest distinguishes the second version from the third version in Forrest 2001, p. 93.

The first principle might be thought to provide the basis for the following objection:

> Kinds of entities should not be multiplied without good reason. There is no good reason to accept contingently non-concrete individuals. Therefore, these beings should not be accepted. The plausibility of necessary existence depends upon the acceptance of such entities. Therefore, necessary existence should be denied.

It is not apparent how strong the presumption embodied in this version of Ockham's Razor is. Say that a theory posits many types of entities with relatively few examples of each, and that another theory posits relatively few types of entities, but many of each of them. Which theory is to be preferred? Other things being equal, it is not clear. Or say that a theory posits many types of entities with few principles governing the theory and another theory posits few types of entities and many principles governing the theory. Which theory is to be preferred? Again, it is unclear. Examples of these conflicts can be multiplied easily. Thus, it is not at all obvious how much weight we should give to this version of Ockham's Razor in contexts where it conflicts with other presumptions. Nevertheless, this principle does embody a presumption that should be respected. Other things being equal, if one theory posits fewer kinds of entities than another theory, the former theory should be preferred. Thus, any violation of this presumption stands in need of justification. The metaphysics necessary for accommodating necessary existence does violate this presumption because it introduces a new kind of individual: a contingently non-concrete individual. Therefore, good reason has to be given to justify this violation. The arguments for necessary existence provide this justification.

The second principle may be thought to form the basis for the following objection to necessary existence.

> The number of entities assumed to actually exist should not be multiplied without good reason. Necessary existence requires that there could not have been fewer individuals than there actually are. This requirement sets a lower limit on the number of entities assumed to exist. There is no good reason to accept necessary existence. Therefore, necessary existence should be denied.

Again, it is not at all obvious how much weight to assign to this principle, that the number of entities assumed to actually exist should not be multiplied without good reason, given the same sort of considerations discussed above, but I do think that this principle is true. However, it is not at all clear that necessary existence violates this version of Ockham's Razor because necessary existence does not require the multiplication of entities that actually exist. Rather, it requires the non-subtraction of any actual entities. This non-subtraction of any actual entities is a sort of multiplication of entities, namely, a multiplication of entities with respect to the number of entities postulated by other theories of modality, but it is not a multiplication of entities with respect to the number of entities there could have been. On the former interpretation of 'the multiplication of entities', the defender of necessary existence should claim that the arguments for necessary existence provide good reason for overturning the presumption against the multiplication of entities. Now on the latter interpretation of 'the multiplication of entities', the defender of necessary existence can accept this version of Ockham's Razor and deny that necessary existence contravenes it.

The third principle does not present an apparent problem for necessary existence because necessary existence does not make any claims about what actually exists. Rather, necessary existence is the claim that whatever actually exists must have existed. Thus, necessary existence, on its own, does not multiply any actual entities. However, the arguments I give for necessary existence in Chapters 5-6

together with the claim that the accessibility relation between possible worlds is symmetric implies that individuals we think to be merely possible, such as the possible child of Wittgenstein and Bette Davis, are actual.[31] Because the metaphysical argument is necessary for a convincing case for necessary existence, a claim I substantiate in the following chapter, it seems that the case for necessary existence together with the claim that the accessibility relation between possible worlds is symmetric implies the multiplication of actual entities on a large scale. Given this consequence, what we think of as merely possible, is really merely possibly concrete. The possible child Wittgenstein and Bette Davis might have had is not merely possible because it is actual; rather, it is merely possibly concrete. This result does pose a difficulty given the third version of Ockhams' Razor. This difficulty can be put in the following argument.

> The number of entities assumed to exist should not be multiplied without good reason. The case for necessary existence together with the claim that the accessibility relation between possible worlds is symmetric entails that individuals that were thought to be merely possible are actual but merely possibly concrete. This result multiplies the number of entities actually existing. There is good reason to accept that the accessibility relation between possible worlds is symmetric. Therefore, there is a strong presumption against the acceptance of the case for necessary existence.

I accept that there is a strong presumption against the acceptance of the case for necessary existence because it multiplies the number of entities assumed to exist. I take this presumption as a challenge to present such a case.

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[31] I discuss this implication in Chapter 5.

SUMMARY

In this chapter I have outlined some of the most prominent objections to necessary existence, and I have provided responses to these objections. While I would not expect the objector to be convinced that necessary existence is true, I hope to have opened up the doxastic possibility that necessary existence is true. In the following chapter, I examine what sort of case must be made for necessary existence.

4

Making the Case for Necessary Existence

Having outlined the major objections to necessary existence and having given what I regard to be the most plausible responses to these objections, I now examine what sort of case is required to substantiate these responses. In other words, what sort of positive arguments need to be given for necessary existence that would constitute a convincing case for this claim. I argue that an argument from informal, metaphysical considerations is necessary for the acceptance of necessary existence.

Two Types of Defences of Necessary Existence

Spinoza and Wittgenstein, on the one hand, and Williamson, on the other provide two types of defences of necessary existence. Spinoza and Wittgenstein defend necessary existence from their metaphysical views, namely, causal rationalism and logical atomism, respectively. In contrast, Williamson defends necessary existence from formal, logical considerations.[1] While these are two types of defences, it is important to keep in mind that they are not exclusive to each other. Spinoza and Wittgenstein must use logic in making their case for necessary existence because a persuasive case

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[1] Williamson 2002 offers the metaphysical argument I present in Chapter 5. As he notes, I drew this argument to his attention. He offers the position I criticise in previous work, and he does not note any change of mind in Williamson 2002. Therefore, even though he has offered a metaphysical argument for necessary existence, I take it that he still believes that a formal argument for necessary existence, together with the assumption that formal simplicity is a guide to truth, is a sufficiently convincing case for necessary existence.

requires the use of arguments, and arguments require rules of inference linking premises to conclusions. Such rules of inference are logical in nature. Consequently, a defence based on metaphysical considerations requires the use of formal, logical principles.

Even though a sharp division between logic and metaphysics cannot be drawn, there is a continuum at play here. Some approaches emphasise a view's immediate intuitive appeal, while other approaches emphasise global, systematic virtues, and most approaches lie somewhere between these two extremes. Williamson's view is motivated more by a global, systematic virtue than it is by its immediate intuitive appeal. This virtue is formal simplicity, and, on his view, formal simplicity is a guide to metaphysical truth. In modality, the simplest quantified modal logic, in terms of axioms, is the modal propositional logic K together with classical logic. In this logic, necessary existence is a logical truth. Thus, on Williamson's view, we should accept necessary existence because it is a logical truth of the simplest quantified modal logic. It is this view I argue against in this chapter, especially in the case of necessary existence. I argue that an argument from informal, metaphysical considerations is a necessary component of a convincing case for necessary existence.

WILLIAMSON ON FORMAL SIMPLICITY AS A GUIDE TO METAPHYSICAL TRUTH

Williamson's general methodology is to construct metaphysics within the confines of orthodox logic. In the preface to *Identity and Discrimination* he writes,

> In particular, I have assumed without argument that the last thing to give up is a principle of classical logic; even its opponents should

> agree that no case against it is complete without an understanding of what can be done within its limits.[2]

Given this assumption, we may fairly characterise Williamson's view as 'logically conservative'. He is less willing to change logic than to change metaphysics.

A further example of his employment of this methodology can be found in his approach to the problem of vagueness. This problem is brought to the fore by the following argument.

> A man with zero hairs on his head is bald.
>
> For all n, if a man with n hairs on his head is bald, then a man with n+1 hairs on his head is also bald.
>
> Therefore, a man with a hundred thousand hairs on his head is bald.

This argument is a version of the sorites paradox, the paradox of the heap. It is a paradox because the premises seem to be true, the conclusion seems to be false, and the argument seems to be valid. In fact, the argument is classically valid. Many solutions to this argument have been proposed, and most of them centre on the denial of the validity of the argument. These denials then force a change in logic, a change which, by Williamson's lights, is the least preferable sort of solution.

In contrast, Williamson maintains that the argument is valid, but the second premise, the inductive premise, is false. Consequently, there is an n such that a man having n hairs on his head is bald and a man having n+1 hairs on his head is non-bald. As a result, there is a sharp boundary dividing the extensions of the predicate 'is bald' and its negation. Though there is this sharp boundary, we are ignorant of just where it occurs because our concept of bald is sensitive to factors we are not in a position to survey. This sensitivity causes sentences containing the predicate 'is bald', and other

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[2] Williamson 1990a, p. viii.

such vague predicates, to express different propositions in different contexts. Given the sensitive nature of our concept of baldness, we cannot form reliable judgements about borderline bald and non-bald cases. Because of this unreliability, we cannot know the boundary between the extensions of the predicates 'is bald' and 'is non-bald'. Williamson characterises his account of the sorites paradox as 'the epistemic account of vagueness'.

The virtue of this account, as Williamson sees it, is that it requires no revision of classical logic. This virtue, he argues, counts significantly in the epistemic account's favour. Williamson writes,

> Classical logic and semantics are vastly superior to the alternatives in simplicity, power, past success, and integration with theories in other domains. In these circumstances it would be sensible to adopt the epistemic view in order to retain classical logic and semantics even if it were subject to philosophical criticisms in which we could locate no fallacy; not every anomaly falsifies a theory.[3]

He goes on to say that he need not appeal to this argument in support of the epistemic theory because he has located the fallacies in the philosophical criticisms levied against the epistemic account of vagueness. However, it is significant that Williamson thinks that this argument provides a sufficient reason to adopt the epistemic view. Contrary to Williamson, the primary claim of this chapter is that this argument does not provide a sufficient reason to adopt the epistemic view: while the retention of classical logic is an important benefit of the epistemic view, a convincing case for this view requires further arguments based on informal, metaphysical and epistemological considerations. Williamson does give such arguments, and I think that it is largely due to these arguments that his view has proved to be as influential as it is.

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[3] Williamson 1992, p. 162.

Not only does Williamson have this high view of classical logic, he has a correspondingly high regard for orthodox modal logic.[4] In praise of David Wiggins's work on the necessity of identity, Williamson writes, 'Any metaphysical caprice can be indulged in some more or less deviant formal system. The work of David Wiggins is a reminder of the depth to be gained in metaphysics from the constraints of orthodoxy in logic.'[5] A similar line of praise is offered to Ruth Barcan Marcus who, in Williamson's view, 'did so much to initiate [the tradition] of modal metaphysics disciplined by the rigour of modern logic'.[6] Just as classical logic constrains a proper account of vagueness, in Williamson's view, so does orthodox modal logic constrain a proper account of modal metaphysics.

The reason for adopting the view that orthodox modal logic should constrain modal metaphysics is largely the same as the reason for adopting the view that classical logic should constrain a proper account of vagueness: formal simplicity is a guide to metaphysical truth. Williamson observes that relativising domains to worlds yields a more complicated semantics for quantified modal logic than without such a relativisation, and he writes, 'Such complications are a warning sign of philosophical error.'[7] Presumably, if Williamson thinks that complications are a warning sign of philosophical error, he also thinks that formal simplicity is an encouraging sign of philosophical correctness. Also, in arguing for the converse Barcan formula as against a particular version of the truthmaker principle, which he argues is inconsistent with the converse Barcan formula, he writes, 'The issue illustrates the philosophical power of a simple system of quantified modal logic.'[8] So on

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[4] Orthodox modal logic is a logic comprised of a modal propositional logic at least as strong as K and a classical quantificational base.
[5] Williamson 1996, p. 1.
[6] Williamson 1999a, p. 253.
[7] Williamson 1998, p. 262.
[8] Williamson 1999a, p. 253.

Williamson's view, formal simplicity is evidence of metaphysical truth and philosophical power.

Though formal simplicity is a guide to metaphysical truth, on Williamson's view, formal simplicity is not an infallible guide to truth. For example, a classical logic that has only one element in the domain would be much simpler than the classical logic we now employ that allows for infinitely many elements. One consequence of the domain containing only one element is that the quantifiers are equivalent ($\forall x\varphi(x) \equiv \exists x\varphi(x)$). Spinoza and Terry Horgan and Matja Porc have advocated forms of such a view where all appearances of diversity are illusory.[9] But Williamson does not think that the world has only one element because the appearances are just too compelling to adopt a logic where domains have only one element. So on Williamson's view, formal simplicity is an important consideration in determining metaphysical truth, but it is not an infallible guide to truth. However, if a metaphysics could be developed that made sense of there being only one element, and this metaphysics had the sort of plausibility that the metaphysics I have presented here has, it seems that Williamson should accept that metaphysics.

I have thus briefly traced Williamson's methodology for pairing metaphysics with orthodox logic through his work on vagueness to his work on modal metaphysics. This methodology, I have argued, is governed by the principle that formal simplicity, in general, is a guide to metaphysical truth. The specific application of this principle we are interested in is: the formal simplicity of the modal logic K+CQT which validates necessary existence makes it plausible to suppose that I, and all the other concrete objects in this world, could have been non-concrete but could not have failed to logically exist. If Williamson's aim is merely to do enough

[9] See Spinoza 2000, E1 P14, p. 85 and Horgan and Potrc 2000.

for necessary existence to make it worthy of serious consideration, then I think that he has succeeded in this aim. His work on the metaphysics necessary for necessary existence is integral to making necessary existence plausible, and his argument from formal simplicity does give *prima facie* evidence for the truth of necessary existence. But if Williamson's aim is to change his opponents' minds, I think he has failed. His approach is dialectically ineffective against many, if not most of his opponents, and a plausible argument can be given against the claim that formal simplicity is a guide to metaphysical truth. This failure points to the need for a metaphysical case for necessary existence, a case I present in the following chapter.

WILLIAMSON'S APPROACH IS DIALECTICALLY INEFFECTIVE

Williamson's approach is dialectically ineffective against opponents who hold either of two related views: the first is that logic should be metaphysically neutral and the second is that logic should describe, rather than prescribe, the way the world is. I discuss each of these views in turn. A prominent philosopher who takes the view that logic should be metaphysically neutral is David Kaplan. He gives voice to this line of thought:

> But if PWS [possible-world semantics] is to serve for intensional logic, we should not build such metaphysical prejudices into it. We logicians, strive to *serve* philosophical ideologies not to constrain them. Thus, insofar as possible our intensional logic should be neutral with respect to such issues.[10]

Expressing a view similar to Kaplan's, Peter Geach writes, 'Logic of itself cannot give anyone the answer to any question of substance; but without logic we often do

[10] Kaplan 1995, p. 42. In a footnote to this passage, Kaplan writes 'Except to valid argument, of course.'

not know the import of what we know and often fall into fallacy and inconsistency.'[11] If Williamson's argument for the converse Barcan formula is persuasive, then the view variously expressed by Kaplan and Geach must be set aside: logic *does* constrain philosophical ideologies by answering substantial metaphysical questions.

There are reasons to suspect that the Kaplan-Geach view is incorrect for reasons independent of necessary existence. If the Kaplan-Geach view is that logic should not be metaphysically contentious, this view cannot be true because, in principle, every logical principle is deniable on metaphysical grounds. For example, Graham Priest claims that the law of non-contradiction is false because the world contains contradictory states of affairs.[12] Perhaps those who advocate the Kaplan-Geach view would respond by claiming that no logical principle is deniable on metaphysical grounds. Such an assertion would likely be motivated by an absolutist view of logic, as opposed to a pragmatist view of logic.[13] An absolutist view of logic is a view on which 'logical laws are unalterable, because they have a special status that guarantees their certainty'.[14] This view of logic is highly implausible. The mere existence of many rival logics is enough to cast suspicion on the view. In contrast to the absolutist view, a pragmatist view of logic is a view on which

> logic is a theory, a theory on a par, except for its extreme generality, with other, 'scientific' theories; and according to which choice of logic, as of other theories, is to be made on the basis of an assessment of the economy, coherence, and simplicity of the overall belief set.[15]

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[11] Quoted from Peter Geach's self-profile in Pyke 1993.
[12] See Priest 1995.
[13] The terms 'absolutist view of logic' and 'pragmatist view of logic' are borrowed from Haack 1974, p. 26.
[14] Haack 1974, p. 26.
[15] Haack 1974, p. 26.

Rather than viewing logic as an independent arbiter for determining the way the world is, the image of Neurath's boat might be the image most appropriate for logic.[16] As repairers of the boat, we judge what logical principles we should retain and which we should abandon relative to a weighting of formal and informal considerations. In this weighting, there is no agreed algorithm for assigning confidence in any logical principle because of the mass of issues involved. Rather than stifling objections to logical principles, it is important for reasonable people to disagree about these principles so that we can have alternative views. In this way, we can hope to construct the most metaphysically adequate logic. Thus, even though those who take the Kaplan-Geach view would not be convinced by Williamson's approach, this result does not present a problem for Williamson because this view is an unworkable view of logic and metaphysics.

I turn now to the second group of opponents who would be unmoved by Williamson's arguments. While I am unsympathetic to the view motivating the first group of opponents, I am sympathetic to the view of this second group. In order to describe this view I need to introduce a distinction between descriptive and revisionary metaphysics and a distinction between a descriptive and a prescriptive role for logic in relation to metaphysics. According to Strawson, descriptive metaphysics is the project of describing 'the actual structure of our thought about the world'.[17] Presumably, the philosopher who engages in descriptive metaphysics thinks that our actual thought about the world gives us an accurate guide to the way the world really is or provides some sort of privileged access, or perhaps our only access, to the way the world is. In contrast, revisionary metaphysics does not give a privileged role to our actual thought about the way the world is but, rather, attempts to

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[16] The comparison to Neurath's boat is Haack's. See Haack 1974, p. 37.
[17] Strawson 1959, p. xiii.

give a better characterisation of the world than our actual thought provides. The revisionary metaphysician, then, does not think that our actual thought about the world is necessarily an accurate portrait of the way the world is, and our thought might need to be revised in important ways to get at the truth of the matter.

Clearly, there is a consistent combination of the two positions, descriptive and revisionary metaphysics: a metaphysician might think that our actual thought about the world is correct in some respects but is incorrect in others and so these incorrect respects stand in need of revision. Also, the metaphysician may practise descriptive metaphysics in some areas and revisionary metaphysics in others, so no overall commitment to either project is required for consistency. I would conjecture that most philosophers concerned with metaphysics practise descriptive metaphysics in some areas, revisionary metaphysics in others, and a combination of the two positions as outlined above in still other areas of metaphysics.

Now given these two ways of doing metaphysics, descriptive and revisionary, what role does logic have to play with respect to them? Broadly speaking, there are two roles logic could play: a descriptive role and a prescriptive role. Traditionally, logic played a prescriptive role in relation to metaphysics: logic tells us that certain propositions are logical truths independent of any metaphysical theory, and if a metaphysical theory is to be counted correct, then it must include these truths in its theory. More recently, it has been thought that logic should play a descriptive role in relation to metaphysics. If logic is thought of as merely the study of formal systems, then it is not so clear that the valid formulas of any of those systems should play a privileged role in constructing metaphysics. Also, it might be thought that the role of logic is to give a formal structure to our theories of the way the world is, and these theories are prior to the construction of any formal system. It then becomes a pressing

question which formal system is the correct, or a correct, theory for reasoning about the way the world is, if indeed there is a correct theory. How might such a question be answered? I will return to this question below.

Applying these two distinctions to the matter at hand, arguing for the plausibility of the metaphysics I have presented here and the truth of necessary existence, it appears to me that Williamson thinks that, broadly speaking, logic plays a prescriptive role in relation to metaphysics, and the sort of metaphysics I have given here is a combination of revisionary and descriptive metaphysics: it is descriptive in the sense that the Existence Principle has some intuitive appeal and seems to accurately characterise some aspect of our thought about existence, while it is revisionary in the sense that it claims that we, and all the other concrete individuals in this world, might have been non-concrete while still existing.

As I have stated above, Williamson's case for the plausibility of this sort of metaphysics depends crucially on the idea that logic plays a regulative role in relation to metaphysics, or in terms just introduced, that logic constrains metaphysics, or is prescriptive for metaphysics. I think that Williamson's case can be answered too easily because an opponent could simply respond by saying that Williamson has the wrong idea for the role logic should play in relation to metaphysics: instead of a prescriptive role, logic should play a descriptive role. Writing in this vein, Kripke claims that formalism should not replace ordinary philosophical reasoning. He writes:

> Logical investigations can obviously be a useful tool for philosophy. They must, however, be informed by a sensitivity to the philosophical significance of the formalism and by a generous admixture of common sense, as well as a thorough understanding both of the basic concepts and of the technical details of the formal material used. It should not be supposed that the formalism can grind out philosophical results in a

> manner beyond the capacity of ordinary philosophical reasoning. There is no mathematical substitute for philosophy.[18]

Furthermore, in response to Williamson's claim that formal simplicity is a guide to metaphysical truth, the opponent might simply deny that logical theory is in any way prior to metaphysical theory, just as metaphysical theory is in no way prior to logical theory. The opponent might continue, aesthetically it might be nice to have a simple logical theory, but to borrow a phrase from Wittgenstein, 'elegance is not what we are trying for'.[19] Rather, we are looking for an adequate accounting of the modal facts, and these facts might be complicated and require a complicated modal logic. So without a substantial defence of the claim that orthodox modal logic, a logic containing a modal system at least as strong as K paired with a classical quantificational base, Williamson's case appears to be easily deniable by the opponents of necessary existence.

Now returning to the question I left hanging two paragraphs above, what would constitute a defence of a particular formal system as the correct logical theory of an area of metaphysics, I claim that such a defence must be motivated primarily by metaphysical, informal considerations. Contrary to the traditional view of logic, that logic plays a prescriptive role in relation to metaphysics, the adoption of any formal system requires a justification and the content of this justification must be a metaphysical argument that does not use the formal principles that are to be justified. An example may help here. If one is attempting to offer an argument for classical logic and against intuitionist logic, it would be beside the point to appeal to the principle of bivalence because this very principle is the principle at issue. Thus, a persuasive argument for classical logic and against intuitionist logic would use logical

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[18] Kripke 1976, p. 416.
[19] Wittgenstein 1958, p. 19.

principles, but bivalence should not be one of these principles. The content of the premises of such an argument, on my view, should be informal, metaphysical considerations.

I think Williamson goes wrong in constructing metaphysics, that is the metaphysics I have given here, within the constraints given by classical and orthodox modal logic without a satisfactory metaphysical justification of this logic, and this omission gives his opponents an easy reply. A satisfactory metaphysical justification is needed for this metaphysics, and I think that I give such a justification in Chapter 5. Williamson may respond by borrowing Mill's response to his critics: I am going up the same hill, just on the other side. While I agree with this Millian analysis of my objection, my strategy will bring not only myself but also a few others up the hill.

FORMAL SIMPLICITY IS AN INSUFFICIENT GUIDE TO METAPHYSICAL TRUTH

A more substantial criticism can be made against Williamson's case for necessary existence. This criticism is that formal simplicity is an insufficient guide to metaphysical truth. If this is so, Williamson's case for necessary existence collapses. I turn to arguing for this criticism. I consider what appears to be the best case for this claim, which is an analogy to the claim that theoretical simplicity is a guide to scientific truth. I argue that no such appeal can work. I then briefly give some considerations that tell against formal simplicity being a guide to metaphysical truth.

Williamson compares his approach to modal metaphysics with that of the scientist: just as the scientist assumes, perhaps justifiably, that theoretical simplicity is a guide to truth, so should the metaphysician assume that formal simplicity is a guide to truth. The problem with this comparison is that formal simplicity corresponds to

only one aspect of theoretical simplicity. Richard Swinburne isolates a number of aspects of simplicity that scientists take into account when they judge the relative merits of a theory. In Swinburne's view, theoretical simplicity is a function of the number of entities the theory postulates, the number of kinds of entities the theory postulates, conceptual simplicity, the number of laws the theory requires, the number of variables needed by the laws, and mathematical simplicity.[20] I take it that Swinburne's account of theoretical simplicity is an adequate account of the type of simplicity that plays a role in judging the merits of a particular scientific theory.

If this is so, then formal simplicity seems to correspond to only a portion of theoretical simplicity, namely the number of laws a theory requires, the number of variables needed by the laws, and mathematical simplicity. Furthermore, formal simplicity cannot correspond to the ontological aspects of theoretical simplicity, which are the number and kinds of entities a theory postulates, because formal simplicity is meant to be a guide to justifying just what kinds and numbers of entities exist. Formal simplicity is only a function of the number of axioms and variables a logic contains.

In order to illustrate the divergence between formal and theoretical simplicity, consider two theories. Say that the first postulates many objects, many kinds of objects, and few laws containing few variables. Say that the second postulates few objects, few kinds of objects, and many laws containing many variables. On the criteria for formal simplicity, the first theory is much simpler than the second, but on the criteria for theoretical simplicity, arguably, the two theories are on a par. Thus, formal simplicity is at most a proper subset of the aspects of theoretical simplicity, and it is not at all clear that these aspects of theoretical simplicity, taken on their own,

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[20] Swinburne 1997, pp. 24-26.

are important in judging the relative merits of a scientific theory. Therefore, Williamson's case for the claim that formal simplicity is a guide to metaphysical truth cannot be substantiated by an appeal to theoretical simplicity being a guide to scientific truth.

There appears to be no good reason to suppose that formal simplicity is a guide to metaphysical truth. It is unreasonable to simply assume that the world is simple, and also, even if the world is simple, why should we believe that our best formal account of it would be simple?[21] The simpler formal theory may be more convenient, but it need not be more likely to be true. A response to this line of objection might be that the formal account that is to be preferred may not itself be simple, but it is the simplest of all the formal accounts; it is the simplest formal account that is to be preferred, and this does not imply that the preferred theory is simple. But the reply here is that there is no reason to suppose that a more complicated formal account might better describe the world than a simpler account. We have no reason to suppose otherwise. In the absence of such a reason, we should not accept the claim that formal simplicity is a guide to metaphysical truth.

Also, there appears to be good reason to suppose that a metaphysical case is necessary to justify a metaphysical claim. If we suppose that logic should be descriptive, rather than prescriptive, of the way the world is, any case for a metaphysical claim would require a metaphysical argument. Clearly, logical considerations can never be dispensed with because they are integral to giving persuasive arguments, but they can be given less weight. The descriptivist will surely be one giving less weight to formal considerations. In order to push the balance in

[21] This objection is adapted from Foley 1993, p. 212.

favour of necessary existence, the descriptivist will require a metaphysical argument. The argument of Chapters 5 is just this type of argument.

In the final analysis, my case for necessary existence is supported by two different kinds of arguments, and both are essential to my case. The first, informal argument proceeds from metaphysical principles that might be thought to be fundamental truths of the metaphysics of propositions to necessary existence; the second, formal set of arguments proceed from formal principles that might be thought to be fundamental truths of modality and quantification theory to necessary existence.

The way in which these arguments are interdependent is particularly interesting: at some points in my defence of the second, formal set of arguments, I appeal to the principles used in the first, informal argument; and the same sort of considerations that support the first argument also support the second set of arguments. This interdependence might well be taken to indicate that there is no clear distinction between logic and metaphysics: one simply cannot do logic without some appeal to metaphysical considerations, and one cannot do metaphysics without some appeal to logical considerations. To this extent at least, the present work may be seen as an episode in a more general investigation of the interaction between logic and metaphysics.

SUMMARY

This chapter examined Williamson's case for necessary existence and found that it lacked a crucial element, namely, an argument from informal, metaphysical principles. Without this argument, the opponents of necessary existence would be

rightly unconvinced by Williamson's case. In the following chapter, I present a case that I believe should convince these opponents.

5

THE METAPHYSICAL ARGUMENT FOR NECESSARY EXISTENCE

Having argued that a metaphysical argument is necessary to justify the acceptance of necessary existence, I turn now to providing such an argument. It has the following three premises.[1]

(1) Necessarily, if I do not exist[2] then the proposition that I do not exist is true. $\Box(\neg E!x \supset T[\neg E!x])$, where '$x$' refers to me, '$T$' is the truth predicate, and '$[\neg E!x]$' abbreviates 'the proposition that I do not exist'.

(2) Necessarily, if the proposition that I do not exist is true then the proposition that I do not exist exists.
$\Box(T[\neg E!x] \supset E![\neg E!x])$

(3) Necessarily, if the proposition that I do not exist exists then I exist.
$\Box(E![\neg E!x] \supset E!x)$

Before proceeding further, it will prove useful to note the general principles underlying these three premises.

The principle underlying (1) is the claim that necessarily, if a sentence containing an ordinary proper name, demonstrative, or indexical is true, then the proposition

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[1] Williamson presents the argument in much the same form as I have stated it here in Williamson 2002. However, I discovered the significance of this argument for necessary existence independently of Williamson and drew his attention to it. See Williamson 2002, note 1.

[2] The sentence 'I do not exist' is ambiguous between the externally negated sentence 'It is not the case that I exist' and the internally negated sentence 'I am non-existent'. I intend the former, externally negated sentence for 'I do not exist' in this argument and my defence of it. I continue to use the ambiguous sentence 'I do not exist' for ease of presentation.

expressed by the sentence is true. Henceforth, I shall refer to such propositions by the term 'singular propositions'. In formal notation, this principle is the following:

(1*) $\Box(\varphi(x) \supset T[\varphi(x)])$, where $\varphi(x)$ is any formula in which 'x' appears free.

The principle supporting premise (2) is the claim that necessarily, if a proposition is true, then it exists.

(2*) $\Box(T[\varphi(x)] \supset E!x)$, where $\varphi(x)$ is any formula in which 'x' appears free.

Finally, the principle underlying premise (3) is the claim that necessarily, if a singular proposition exists, the referent of the singular term exists.

(3*) $\Box(E![\varphi(x)] \supset E!x)$, where $\varphi(x)$ is any formula in which 'x' appears free.

With these general principles noted, we can proceed to their consequences.

Given the transitivity of the strict conditional, we can conclude from (1) – (3) the following claim:

(4) Necessarily, if I do not exist then I exist.
$\Box(\neg E!x \supset E!x)$

Consequently, the claim that I do not exist strictly implies a contradiction. Because contradictions are necessary falsehoods, this claim is necessarily false. Therefore, the claim that I exist is necessarily true.

(5) Necessarily, I exist.
$\Box E!x$

Thus, appearances to the contrary, I am a necessary existent.

However, there is a further step we should take. Because nothing in this argument relies on any particular property I have, we can generalise (5) by universally generalising over the pronoun 'I':

(6) Everything is such that, necessarily, it exists. Or more simply, everything is a necessary existent.
$\forall x \Box E!x$

We have thus derived the controversial claim at issue. So, not only am I a necessary existent, but everything, even the table on which I am writing, is a necessary existent.

There is one final step we could take. Because nothing in this argument depends on any distinctive property this world has, we could necessitate (6) obtaining:

(7) Necessarily, everything is a necessary existent.
$\Box \forall x \Box E!x$

That necessary existence is itself a necessity has significant consequences, which I discuss toward the end of this chapter. But with this step taken, we have completed the metaphysical argument for necessary existence.

This argument has some history. Essentially, the materials for it can be found in Prior's work. From something very much like premises (2) and (3) together with the denial of (5), that is, that I am not a necessary existent, he argues for the denial of (1).[3] A reconstruction of my version of Prior's argument would look something like this:

(2) Necessarily, if the proposition that I do not exist is true then the proposition that I do not exist exists.

[3] Prior 1967, pp. 149-151.

(3) Necessarily, if the proposition that I do not exist exists then I exist.

(¬5) It is not necessary that I exist.

Therefore,

(¬1) It is not necessary that if I do not exist then the proposition that I do not exist is true.

Though this argument appears to be in Prior's work, and it appears that Prior endorses the conclusion, (¬1),[4] he should not only deny (1), but also he should deny (2) and (3) because they are inconsistent with the fundamental principles of his modal metaphysics and modal logic. I discuss what Prior's response to the argument from (1) – (7) should be in Chapter 10 in the context of his response to one of the formal arguments for necessary existence I present in Chapter 6. Specifically, the argument he gives against one of the rules of inference used to derive necessary existence entails the denial of premises (1), (2), and (3), or so I argue in Chapter 9.

Using essentially the same materials as those found in Prior's argument, Plantinga argues against premise (3), rather than premise (1).[5] That is, Plantinga argues from something very much like premises (1) and (2) together with the denial of (6) to the denial of (3). A reconstruction of Plantinga's argument would look something like this:

(1) Necessarily, if I do not exist then the proposition that I do not exist is true.

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[4] Broadly speaking, Fine reconstructs Prior's argument in a manner similar to the formulation presented here in Fine 1977, pp. 149-150. In this publication, Fine agrees with the conclusion Fine and I have attributed to Prior. Fine 1985, pp. 160-180 also contains a discussion of Prior's argument. However, in later work, Fine denies the basis for premise (2) of this argument; this denial then undercuts Fine's reason for accepting Prior's conclusion. Fine 1985 contains Fine's denial of what he terms 'property actualism', which is the claim that necessarily, if an individual has a property, then that individual exists. Formally, the claim is the following: $\Box\forall x\Box(Fx \supset E!x)$, where '$E!$' denotes the existence predicate. A claim of this sort has also been termed 'serious actualism' by Alvin Plantinga.

[5] Plantinga 1983.

(2) Necessarily, if the proposition that I do not exist is true then the proposition that I do not exist exists.

(¬5) It is not necessary that I exist.

Therefore,

(¬3) It is not necessary that if the proposition that I do not exist exists then I exist.

These arguments capture much of what is important in Prior's and Plantinga's modal metaphysics and modal logic. Since I deal with their metaphysical and logical views in Chapters 9 and 10, respectively, I postpone further discussion until then.

I turn now to defending the argument. The argument makes use of many controversial assumptions. As the conclusion of the argument is apparently ludicrous, it might be thought that this argument is a *reductio ad absurdum* for any of these controversial assumptions. I hope to have undermined the presumption that the conclusion of the argument is ludicrous in previous chapters and thereby undermined the inference that the conclusion is a *reductio ad absurdum* for some premise of the argument. Even if my hope is fulfilled, each of the premises requires substantial defence. Because I do not have the space to defend each of these assumptions in great detail, I consider only the most prominent arguments for and against these assumptions.

Global Objections to the Argument

There are four influential objections that apply to the argument as a whole. That is, these objections are not specific to single premises; rather, these objections apply to all of the premises. For this reason, I term these objections 'global objections'. One of these

objections is formal in nature, and three are metaphysical in nature. I deal with the metaphysical objections in this chapter, and I deal with the formal objection in Chapter 8. I devote an entire chapter to this formal objection because it applies not only to the metaphysical argument given here, it also applies to the three formal arguments I give for necessary existence in Chapter 6. Thus, it is crucial that this objection be answered. But the task here is to answer the global, metaphysical objections. These objections centre on the following issues: what propositions are required to be for this argument to be sound, and what senses of 'exists' and 'is true' are used in the argument. To begin, I consider what propositions need to be for this argument to be sound.

PROPOSITIONS

The first and second premises involve a true proposition, and the second and third premises involve an existing proposition. So, for this argument to be sound, propositions have to be one sort of thing that the truth predicate and the existence predicate apply to.

I begin by noting what I mean by 'proposition'. A proposition is the referent, if any, of a that-clause. A that-clause, such as 'that I do not exist', is a putative singular term that figures in sentences such as 'If I do not exist, then that I do not exist is true'. If propositions exist, they are necessarily non-concrete and they are independent of both mind and linguistic practice. Furthermore, they have truth conditions of the following form: if *s* says that *p*, then that *p* is true just in case *p*, where *s* is any sentence. Thus, if propositions exist, they are the sort of thing that the truth predicate applies to. Propositions, it is commonly thought, are the bearers of truth and falsity. It is in virtue of

expressing a true proposition that a sentence is true, and it is in virtue of expressing a false proposition that a sentence is false. Accordingly, if propositions exist, there is no difficulty in fulfilling the requirement that propositions be the sort of thing that the truth predicate applies to. But it is far from uncontroversial that propositions do exist.

One prominent objection to the existence of propositions can be formulated in the following argument.

> If the proposition that it is raining is true, then this proposition exists, by (2*), the principle supporting the second premise of the argument. But in what sense of 'exists' does the proposition that it is raining exist? It is fairly clear in what sense of 'exists' utterances exist: as spatially located, causally efficacious individuals. Clearly, propositions do not exist in this sense of 'exists', and if this sense of 'exists' does not apply to propositions, what sense of 'exists' does? And if we cannot specify a reasonable sense of 'exists' in which propositions exist, then why should we suppose that they have properties, like the property of being true?

Clearly, this argument is relying on a naturalistic understanding of the existence predicate. The point of Chapter 2 was to argue against the appropriateness of assigning such a meaning to the existence predicate in the context of philosophical logic and modal metaphysics. If the arguments of that chapter were successful, this objection should pose no difficulty to the logical existence of propositions.

However, even the logical existence of propositions is objectionable to some. The objection runs as follows. Assume that I might not have existed, and one of the worlds in which I do not exist is just like the actual world except that in this world there are no language users. The objector then assumes that in such a world, given premise (1), the proposition that I do not exist is true, and given premise (2), this proposition exists. So, it may be thought, given the first two premises of the argument and the assumption that I

might not have existed in a world devoid of language users, in this world, the proposition that I do not exist exists and is true. But, the objection concludes, this consequence is not genuinely possible, at least according to a view of propositions asserted by Hilary Putnam in a discussion of his own and Richard Rorty's views on the mind-independence of the way the world is:

> In any sense of "independent" I can understand, whether the sky is blue is independent of the way we talk. There is, however, a way in which Rorty himself has put things elsewhere that seems much happier to me. Even if we (*with* our language in place) must say that the sky is blue, and even if we must allow that that fact is (causally and logically) independent of how we talk, we do not have to concede that there would be a thing called "the proposition that the sky is blue" even if we did not talk that way. It is statements (not abstract entities called "propositions") that are true or false, and while it is true that the sky would still have been blue even if language users had not evolved, it is not true that *true propositions* would still have existed. If language users had not evolved, there would still have been a world, but there would not have been any *truths*. But recognizing that fact – and it is an important one – does not require us to say that the sky is not blue independently of the way we speak. What it does require us to do – and here I do agree with Rorty – is to give up the picture of Nature as having its very own language which it is waiting for us to discover and use. I agree with Rorty that there is no one metaphysically privileged description that was always waiting to be written down. There are many ways of describing things, some better and some worse and some equally good but simply different, but none which is Nature's own way. If I say, "There is a blue chair in front of me," and my statement happens to be true, I have described a part of the world just as truly as if I had said, "There is a large collection of fermions." Both descriptions describe what is before me; neither describes "in itself," not because the "in itself" is an unreachable limit, but because the "in itself" does not make sense.[6]

In essence, Putnam denies that there is a true proposition that the sky is blue in a world in which there are no language users because he denies that there is 'one metaphysically privileged description that was always waiting to be written down'.

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[6] Putnam 1994, p. 302 (his emphasis).

However, denying that there is such a privileged description of this or any world does not entail that there are no true propositions in a world without language users. Even if Putnam is right that the sentences 'There is a blue chair in front of me' and 'There is a large collection of fermions' are equally good descriptions of a situation Putnam finds himself in, this assumption does not entail that in this world, the propositions that there is a blue chair in front of Putnam and that there is a large collection of fermions are not true and do not exist. One can deny that there is any privileged description of this or any world while affirming that there are true propositions in worlds without language users by claiming that all the descriptions of a world express propositions that exist in that world, and, if these propositions correctly describe that world, they are true in that world. Thus, these true propositions exist regardless of whether the descriptions expressing them were ever spoken by some language user. Therefore, Putnam has not made a convincing case for denying that there are true propositions in worlds without language users.

Having dealt with two prominent objections to the existence of propositions, I turn to an argument for the existence of propositions. Consider the following apparently valid arguments.

> John believes that Beckham is a great athlete.
> That Beckham is a great athlete is true.
> Therefore, John believes something true.
>
> James believes that the speed of light is constant.
> That the speed of light is constant is Einstein's theory.
> Therefore, James believes Einstein's theory.
>
> Jack believes that England will win the World Cup and so does Jim.
> Therefore, there is something that both Jack and Jim believe.

Jerry believes everything that the Pope says.
The Pope says that Jesus is divine.
Therefore, Jerry believes that Jesus is divine.

The best argument for the existence of propositions is that they are indispensable in accounting for the validity of the above arguments.[7] If that-clauses refer to propositions, then the above arguments have the following logical form.

$B(a, b), Tb \vdash \exists x(B(a, x) \wedge Tx)$

$B(a, b), b = c \vdash B(a, c)$

$B(a, b), B(c, b) \vdash \exists x(B(a, x) \wedge B(c, x))$

$\forall x(S(a, x) \supset B(b, x)), S(a, c) \vdash B(b, c)$

Thus, the validity of these arguments is a straightforward matter if we accept the claim that that-clauses are singular terms referring to propositions. I do not have the space to enter into an extended defence of this claim, but I must at least briefly consider two prominent accounts contrary to it. One such account is Davidson's paratactic theory.[8] On Davidson's theory, the logical form of sentences such as 'Galileo said that the earth moves' is:

Galileo said that.
The earth moves.

where 'that' is a demonstrative referring to the subsequent utterance of 'The earth moves'. On this theory, the validity of the above arguments depends on the manner in

[7] This argument is an application of Quine's indispensability argument for the existence of mathematical entities. See Quine 1948 and Quine 1960.
[8] Davidson 1969.

which the co-reference of demonstratives relates to logical form. For example, consider the argument

> That is *F*.
> Therefore, That is *F*.

where 'that' co-refers. It is not obvious that this argument is valid if the semantic value of a demonstrative is a mode of presentation. If the semantic value of 'that' in the premise is one mode of presentation of the object, and the semantic value of 'that' in the conclusion is another mode of presentation of that object, then the argument is invalid. The insufficiency of the co-reference of demonstratives for the validity of the argument, from 'That is *F*', infer 'That is *F*', makes if difficult to account for the apparent validity of the following argument on Davidson's theory.

> John believes that Beckham is a great athlete.
> That Beckham is a great athlete is true.
> Therefore, John believes something true.

On Davidson's theory, the logical form of this argument is the following.

> John believes that.
> Beckham is a great athlete.
> That is true.
> Beckham is a great athlete.
> Therefore, John believes something true.

Because we have two utterances of 'Beckham is a great athlete' there is no single thing that John believes and is true. As a result, on this interpretation of the logical form of the intuitively valid argument, it is invalid. Perhaps, it might be reformulated as the following.

John believes that.
Beckham is a great athlete.
That is true.
Therefore, John believes something true.

On this interpretation, both occurrences of 'that' refer to a single utterance of 'Beckham is a great athlete'. But this argument is invalid if the semantic value of a demonstrative is a mode of presentation, and the utterance of 'Beckham is a great athlete' has two modes of presentation, one of which is the semantic value of the first occurrence of 'that' and the other is the semantic value of the second occurrence of 'that'. Consequently, Davidson's theory creates difficulties in accounting for the validity of seemingly valid arguments.

Now if Davidson's theory is correct, his theory cannot support the existence of propositions, as I have characterised them. While Davidson's paratactic theory has attracted a great deal of commentary, I can discuss only one further problem with it. Ian McFetridge uncovers this problem, and he terms it 'the counting problem'.[9] Say that Galileo uttered 'Si muove la terra' a hundred times in the course of an interview, and this sentence is the only sentence he uttered. On Davidson's theory, Galileo said one hundred different things. But pre-theoretically, it seems that Galileo said precisely one thing, namely, that the earth moves. Consider the following dialogue.

A: The earth moves.
B: Galileo said that.
A: The earth moves.
B: That's *another* thing Galileo said.[10]

[9] McFetridge 1975.
[10] McFetridge 1975, p. 31.

On Davidson's theory, B's second remark is correct, which is inconsistent with the claim that Galileo said just one thing. Both Ian McFetridge and Ian Rumfitt have revised Davidson's theory so that it is consistent with the claim that Galileo said just one thing.[11] While I do not have the space to consider these revisions, their effect is to make the existence of propositions much more plausible.

Arthur Prior has presented another account of the logical form of sentences containing that-clauses that does not support the existence of propositions.[12] On Prior's account, 'Galileo said that the earth moves' has the logical form:

Galileo said that / the earth moves,

where the particle 'that' belongs semantically with the verb 'said'. On this account, there are no 'that'-clauses serving as singular terms having propositions as their referents. Where there appears to be a 'that'-clause, as in 'Galileo said that the earth moves' we have a singular term, 'Galileo', a verb together with 'that' functioning as a complementizer, 'said that', and a complete sentence, 'the earth moves'. Now if we do not think of 'the earth moves', as it occurs in 'Galileo said that the earth moves', as a proposition-like entity and not an utterance, we encounter another version of McFetridge's counting problem and we have difficulty accounting for the apparent validity of arguments like: from 'John said that Beckham is a great athlete' and 'James said that Beckham is a great athlete', infer 'John and James said the same thing'.

However, even though this account analyses away the names of propositions, it is consistent with the existence of propositions as I have described them, namely, as

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[11] McFetridge 1975 and Rumfitt 1993.
[12] Prior 1971.

necessarily non-concrete and independent of both mind and linguistic practice. Consistency between Prior's account of the logical form of sentences containing, by Prior's lights, verb phrases such as 'said that' and the existence of propositions is achieved if we take propositions to be linguistic items and we conceive of language in a Platonic way. The sentences needed for Prior's account are not sentence tokens, or individual utterances, but, rather, linguistically conceived propositions that exist whether or not they are ever uttered.

On this conception of propositions, there are true propositions 'always waiting to be written down', to use Putnam's phrase. Such a view of propositions is at home in a conception of language developed by David Lewis.[13] Lewis thinks that a language is a formal system correlating sentences with meanings. These correlations are represented as ordered pairs consisting of the sentence and its meaning: <sentence, meaning>. The meaning of a sentence is the proposition it expresses, regardless of whether the sentence is ever uttered. It this sort of language that is required for the present view.

Noam Chomsky calls languages of the sort that Lewis is proposing E-languages because the language is extensional (it is a set of objects of some kind) and the language is external to the mind/brain.[14] Lewis's language consists in sets of ordered pairs, and in order for a sentence to be correlated with a proposition, the sentence need never be uttered or conceived of by a language user. Thus, on this view, it is reasonable to suppose that in all possible worlds, even those without language users, if a sentence correctly describes a world, then the meaning of this sentence, or proposition expressed by this sentence, is true in that world. Therefore, given Lewis's view of language, the

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[13] Lewis 1975.
[14] Chomsky 1995, p. 559.

claim that there are true propositions in worlds without language users is true. Thus, a Lewisian view of language is what is sufficient for premises (1) and (2) of this argument. Altering a famous phrase from Putnam, propositions just ain't in the head.

EXISTENCE

Not only is the issue of existence important for premises (1) and (2) concerning propositions and their required existence, this issue is relevant to the entire argument. Specifically, it is important that there be no equivocation on the existence predicate in the argument from (1) – (7). Propositions have to exist in the same sense of 'exists' as the sense of 'exists' in which I exist, if there is to be no equivocation on the existence predicate in the argument from (1) – (5).[15] Furthermore, this sense of exists has to be the same sense of 'exists' in which everything exists, if we are to infer (6), the claim that everything is a necessary existent, from (5), the claim that I am a necessary existent. Thus, if there is to be no equivocation in the argument, the same sense of 'exists' must apply to propositions, me, and everything else in the world.

Recall that in Chapter 2 I argued that the logical sense of 'exists' is the widest sense of 'exists' in that it applies to everything, and this sense of 'exists' is the only sense of 'exists' that, as a matter of logic, has this property. If the argument is to be defensible, then the logical sense of 'exists' must be the sense of 'exists' used throughout the argument. Also, recall that this sense of 'exists' gives the conclusion that we are most concerned with, the claim that everything is a necessary existent, some plausibility.

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[15] This requirement is in stark contrast to Carnap's view that abstract objects exist, but not in the same sense of 'exists' that concrete objects exist. See Carnap 1950.

Therefore, because the logical sense of 'exists' is the only sense of 'exists' that renders the argument defensible and its conclusion plausible, the logical sense of 'exists' is the only sense of 'exist' I am interested in for present purposes. Because the logical sense of 'exists' is the only sense of 'exists' I am concerned with in this chapter, whenever I write 'exists' (or any form of 'exists') I intend 'logically exists'.

TRUTH

The last global issue that I will discuss is the interaction of the truth predicate with the necessity operator. The truth predicate appears in the scope of the necessity operator in premises (1) and (2). Some want to make a distinction between a sentence being true of a world and true in a world.[16] A proposition is true *in* a world just in case it is both true and exists in that world. A proposition is true *of* a world just in case it is true but it need not exist in that world. Using this distinction between truth in and truth of a world, premises (1) and (2) can be rewritten as:

(1Ma) For all possible worlds *w*, if I do not exist in *w*, then the proposition that I do not exist is true in *w*.

(2Ma) For all possible worlds *w*, if the proposition that I do not exist is true in *w*, then the proposition that I do not exist exists in *w*.

(1Mb) For all possible worlds *w*, if I do not exist in *w* then the proposition that I do not exist is true of *w*.

(2Mb) For all possible worlds *w*, if the proposition that I do not exist is true of *w*, then the proposition that I do not exist exists in *w*.

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[16] This distinction is ultimately due to Prior's work in modal metaphysics, though he never explicitly made it himself. Those who follow the guiding intuitions, or spirit, of his work, if not the letter, notably, Kit Fine, Robert Adams, Peter Lopston, Christopher Menzel, and Harry Deutsch, make this distinction explicitly.

On the 'true in' interpretation, (1Ma) is open to challenge because it might be argued that if I do not exist in *w*, then the proposition that I do not exist is true of *w* and not in *w*. On this same interpretation of the truth predicate, (2Ma) is clearly true because if the proposition that I do not exist is true in *w*, this proposition exists in *w* given the definition of 'true in'. On the 'true of' interpretation, there is no objection on the basis of the interpretation of the truth predicate to (1Mb), but there may be some independent objection to this claim. On this same interpretation of the truth predicate, (2Mb) is clearly false because given the definition of 'true of', the proposition that I do not exist can be true of *w* without existing in *w*. Thus, the objector maintains that all the premises of the metaphysical argument are true just in case there is an equivocation over the truth predicate in the argument.

In response, I deny that the metaphysical argument must be reformulated in the objector's terms. Specifically, I deny that premises (1) and (2) should be interpreted as (1Ma) and (2Ma) or (1Mb) and (2Mb). Why should premises (1) and (2) receive such interpretations? The objector may reply by saying that any sentence containing the truth predicate in the scope of a modal operator must be interpreted in terms of quantification over possible worlds and the truth predicate relativised to worlds. This reply is a form of extensionalism in modal logic. But why should we accept this extensionalist requirement? Why should a modalist account of the truth theory of modal sentences be rejected from the start?[17] On a modalist account, modal operators are taken as primitive

[17] Such a truth theory is given in Peacocke 1978.

rather than as quantifiers over possible worlds.[18] On this account, premises (1) and (2) would not receive the sort of interpretations the objector demands.

Before leaving this objection, I note that it requires a controversial assumption, namely, that propositions are contingent existents. Not only must propositions exist, some propositions must do so contingently if the distinction between truth in a world and truth of a world is to make a difference. Otherwise, if all propositions are necessary existents, then all true propositions are true *in* a world. Generally speaking, those who accept the existence of propositions take them to be necessary, rather than contingent, existents.

The view motivating the claim that there are contingently existing propositions will be explored in the defence of premise (3) of this argument, and more extensively in Chapter 9. Those who propose that there are contingently existing propositions and emphasise this distinction concerning truth in a world and truth of a world claim that these contingently existing propositions are all and only singular propositions whose singular terms refer to contingent existents. Briefly, it is thought that if there are contingent existents, propositions about these contingent existents are contingent existents, themselves. A formal consideration of this claim sheds some light on its relation to the rest of the argument. Formally, the claim is:

(8) $\neg\Box E!x \supset \neg\Box E![\varphi(x)]$, where $\varphi(x)$ is any formula in which 'x' appears free.

Contraposition then yields the following:

(9) $\Box E![\varphi(x)] \supset \Box E!x$.

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[18] Ironically, Prior is one of the most prominent modalists.

Now given modus ponens and the K axiom,

(K) $\Box(\varphi \supset \psi) \supset (\Box\varphi \supset \Box\psi)$,

the modal axiom of the logic I use in Chapter 6 to formally argue for necessary existence, (9), and so (8), follows from the principle underlying the third premise of the metaphysical argument:

(3*) $\Box(E!x[\varphi(x)] \supset E!x)$.

However, the converse is not the case: (8) entails (3*) only given the fallacious converse of (K). Therefore, one cannot argue validly from (8) to (3*). These claims will be important in Chapter 9 when I examine Prior's modal metaphysics and modal logic. But for the present, I note that because I accept (3*), the (K) axiom, modus ponens, and contraposition, I accept (8), the claim that if there are contingent existents, then the propositions about them are contingent existents, as well. However, because I believe that the argument of this chapter and the formal arguments I will present in Chapter 6 are sound, I do not believe that there are any contingent existents, and, so, there are no contingently existing propositions.

DEFENDING THE FIRST PREMISE

Apart from the objection concerning the meaning of the truth predicate, it is difficult to see what could constitute a counter-example to this premise. In order to have a counter-example, we must have an example of the following sort: $\Diamond(\varphi(x) \wedge \neg T[\varphi(x)])$ (in some

world, a sentence is true in that world but the proposition expressed by that sentence is not true in that world). If a sentence is true, how could it fail to express a true proposition? Sentences are only true in virtue of their expressing a true proposition. If this is so, then there can be no counter-example to (1*).

Though there seems to be a *prima facie* strong case against a counter-example to (1*), Colin McGinn has proposed one. He writes,

> Consider the sentence 'the proposition that Sherlock Holmes is a detective is true iff Sherlock Holmes is a detective'. Can't we quite comfortably affirm that Holmes is a detective without having to be committed to the claim that this proposition is true?[19]

In answer to McGinn's question, we cannot comfortably affirm that Holmes is a detective without also affirming that the proposition that Holmes is a detective is true. If we affirm that Holmes is a detective, we affirm the proposition that Holmes is a detective because propositions are the sort of thing that are affirmed. If we affirm the proposition that Holmes is a detective, then we are committed to the claim that the proposition that Holmes is a detective is true because this commitment is entailed by the meaning of 'affirms'. The same sort of account would apply to sentences containing the names of mythical characters and theoretical entities of false scientific theories. Having argued that the distinction between 'truth in' and 'truth of' a world does not pose a difficulty for the metaphysical argument and defused McGinn's supposed counter-example to (1*), I conclude that there are then no counter-examples to (1*). Therefore, premise (1) is true.

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[19] McGinn 2000, p. 94.

DEFENDING THE SECOND PREMISE

The defence of the second premise follows closely on the defence of the first premise. I just argued that, necessarily, if the sentence 'I do not exist' is true, then it expresses a true proposition. If this sentence expresses a true proposition, it must either exist or fail to exist. How could a sentence express a true proposition that fails to exist? If the proposition that I do not exist is true, then by Russell's theory of descriptions, something is such that it is the proposition that I do not exist, and it is true. Apart from a Meinongian understanding of 'something', if something is such that it is the proposition that I do not exist, then the proposition that I do not exist exists. A Meinongian understanding of 'something' is objectionable on grounds independent of the metaphysical argument for necessary existence. Thus, this understanding need not present a difficulty here. Therefore, the sentence 'I do not exist' must express the existent proposition that I do not exist.

A related defence of premise (2) can be given making use of the Existence Principle. From the conjunction of the Existence Principle and the rule of necessitation, we can derive the formula $\Box\forall x(Fx \supset E!x)$. A standard consequence of this formula is the formula $\Box$(the H is $F \supset$ the H exists). Now let 'the H' abbreviate 'the proposition that I do not exist' and let 'F' be the truth predicate. On these substitutions we have the claim that necessarily, the proposition that I do not exist is true only if the proposition that I do not exist exists, which is premise (2). I now argue that if this proposition exists, then I must exist, as well.

DEFENDING THE THIRD PREMISE

The third premise is an instance of the claim:

(3*) $\Box(E!x[\varphi(x)] \supset E!x))$, where '$x$' appears free in $\varphi(x)$.

It is thought that (3*) is subject to counter-examples. If this is so, then, presumably, we have no reason to believe that the third premise is true. I will consider two such supposed counter-examples, and I will argue that they are not genuine counter-examples before providing a positive argument for (3*).

The first supposed counter-example concerns propositions about fictional characters.

> I believe that Sherlock Holmes is a detective. Therefore, I believe the proposition that Sherlock Holmes is a detective. Consequently, the proposition that Sherlock Holmes is a detective exists. But Sherlock Holmes is a fictional character. Therefore, Sherlock Holmes does not exist. Thus, the proposition that Sherlock Holmes is a detective exists, but Sherlock Holmes does not exist. Therefore, (3*) is false.

In order to deal with this supposed counter-example, we must return to my account of sentences containing the names of fictional characters. If the sentence 'Sherlock Holmes is a detective' is uttered in a storytelling context, this use of 'Sherlock Holmes' is a conniving use of the name. Thus, in this context, 'Sherlock Holmes is a detective' does not express a proposition, not even a non-existent one. Therefore, sentences such as 'Sherlock Holmes is a detective' uttered in a storytelling context do not present a reason for denying (3*).

If 'Sherlock Holmes is a detective' is uttered in a context of literary criticism, then 'Sherlock Holmes' is a genuinely referring proper name. Though 'Sherlock Holmes

is a detective' uttered in this context is not possibly true, it does express a proposition. But this sentence does not present a counter-example to (3*) because Sherlock Holmes, a literary character, exists. Thus, sentences containing the names of fictional characters do not present counter-examples to (3*). The same account applies to sentences containing the names of mythical characters and theoretical entities of false scientific theories.

The second supposed counter-example concerns propositions about incompossible individuals. A set of incompossible individuals is a set of individuals who cannot all exist in the same world. An example of a set of incompossible individuals is due to Nathan Salmon.[20] The following is a synopsis of the example.

> Suppose that Nathan is the result of the union of a particular sperm *s* and a particular ovum *o*. Given Kripkean intuitions about the necessity of origin, Nathan is essentially the result of the union of *s* and *o*. Now consider Nothan-0. Nothan-0 is the individual that results from the union of *s** and *o*, the same ovum that combines with *s* to produce Nathan. Again, given the necessity of origin, Nothan-0 is essentially the result of the union of *s** and *o*. Therefore, necessarily, Nathan exists only if *s* unites with *o* and Nothan-0 exists only if *s** unites with *o*. Necessarily, *o* can unite with either *s* or *s**, but not both. Therefore, necessarily, Nathan exists only if Nothan-0 does not exist. Consequently, Nathan and Nothan-0 are incompossible individuals.

It may be thought that incompossible individuals and our beliefs about them pose a problem for (3*). Consider the following form of the familiar argument.

> I believe that Nothan-0 might be taller than Nathan.[21] Therefore, I believe the proposition that Nothan-0 might be taller than Nathan. Consequently, the proposition that Nothan-0 might be taller than Nathan exists. Nothan-0 and Nathan are incompossible individuals. Therefore, either Nothan-0 does not exist or Nathan does not exist. Thus, the proposition that Nothan-0 might be taller than Nathan exists, but either Nothan-0 does not exist or Nathan does not exist. Therefore, (3*) is false.

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[20] Salmon 1987, pp. 29-50; Salmon 1998, pp. 287-288.
[21] The sentence, 'Nothan-0 might be taller than Nathan', used in this argument is also due to Salmon.

The defender of necessary existence should accept that Nathan and Nothan-0 could not possibly be concrete together, but this impossibility does not imply that Nathan and Nothan-0 could not exist together in the same world, where 'exists' has its logical meaning. That is, the defender of necessary existence denies that Nathan and Nothan-0 are incompossible individuals. So in all worlds, either Nathan or Nothan-0 is contingently non-concrete, and both Nathan and Nothan-0 are something in these worlds.

So far, I have been defending (3*) against supposed counter-examples. Now I wish to offer a positive argument for this principle. I will do this by arguing for the two following claims. First, I will argue that singular propositions are not simple individuals – that is, these propositions have parts. (Because these parts constitute the propositions, I refer to the parts of a proposition as 'constituents'.) Secondly, I will argue that the propositions in question ontologically depend on the referents of the genuinely referring singular terms of the sentences expressing these propositions.

The argument for the claim that singular propositions have parts is the following.

> We have a useful criterion of identity for these propositions only if singular propositions have parts. We make use of such a criterion of identity often. Therefore, singular propositions have parts.

The criterion of identity in question is that propositions are identical only if they share the same constituents. We make use of this criterion when we judge that logically equivalent propositions are distinct from each other. If we did not have this criterion, how could we make this judgement? Formally, the criterion is:

(CI) $\forall x \forall y \forall z(x = y \supset (Czx \equiv Czy))$, where '$Czx$' abbreviates '$z$ constitutes x'

Clearly, this criterion is an instance of Leibniz's Law that is uninterestingly true if propositions do not have constituents. So if (CI) is not trivially true, as we expect it not to be, the claim that propositions have constituents is true. Because (CI) is non-trivially true, the claim in question is true.

Given that singular propositions have parts, what are these parts? The parts of a singular proposition are the semantic values of the expressions constituting a sentence expressing the proposition. For example, the proposition that Blair is wise is constituted by the semantic values of the expressions 'Blair' and 'is wise'. Since I am interested only in the semantic values of the singular terms contained in sentences expressing singular propositions, I will concentrate on these semantic values. The question now arises, what is the semantic value of 'Blair'? More generally, what are the semantic values of ordinary proper names, demonstratives, and indexicals?

There are two rival answers to this question. The first, the Fregean answer, is that the semantic values of these singular terms are modes of presentation of the referents of these terms. For example, the semantic value of 'Blair' is some mode of presentation of Blair. Thus, on this view, the proposition that Blair is wise is partly constituted by a mode of presentation of Blair, and, more generally, singular propositions are partly constituted by modes of presentation of the referents of the singular terms contained in the sentences expressing the propositions. The second, direct-reference answer is that the semantic values of these singular terms are the referents of these terms themselves. For example, the semantic value of 'Blair' is Blair himself, flesh and blood. Thus, on this view, the proposition that Blair is wise is partly constituted by Blair himself, and, more

generally, singular propositions are partly constituted by the referents of the genuinely referring singular terms contained in the sentences expressing the propositions. My defence of (3*) will encompass both views of propositions.

I will start with the direct-reference view of proposition constitution.[22] In order to defend (3*) from this view, I assume that necessarily, singular propositions are essentially constituted by their constituents. This assumption can be formally represented by the following:

$$\Box\forall x\forall y(Cxy \supset \Box(E!y \supset Cxy)).$$

The justification for this assumption is that the propositions, understood from a direct-reference perspective, are much like sets: just as the membership of a set is rigid so is the constituency of a proposition rigid.

Given this assumption, we can argue that singular propositions are ontologically dependent upon their constituents. Formally, the claim is:

$$\Box\forall x\forall y(Cxy \supset \Box(E!y \supset E!x)).$$

I now assume that necessarily, the constituents of propositions exist, and this assumption can be represented formally as:

$$\Box\forall x\forall y\Box(Cxy \supset E!x).$$

From the above claims it follows that singular propositions are ontologically dependent upon the individuals they involve: $\Box\forall x\forall y(Cxy \supset \Box(E!y \supset E!x))$. Now take any singular

[22] The theory of direct reference is developed in Salmon 1986a.

proposition, say the proposition that Blair is wise. Given that Blair constitutes this proposition, as the direct-reference view maintains, this proposition is ontologically dependent on Blair by the argument above. Therefore, (3*) is true on the direct-reference view.

The premises of this argument are also plausible on the Fregean view of propositions. On a Fregean view, singular propositions do not consist in the referents themselves of the singular terms, but, rather, in modes of presentation of the referents of the singular terms. For example, the proposition that Blair is wise partly consists in a mode of presentation of Blair. Now on the Fregean view, could the proposition that Blair is wise exist in a world without Blair? David Wiggins, Gareth Evans and John McDowell have argued against this possibility.[23] Following their work, I argue that a mode of presentation of Blair cannot exist without Blair. Thus, even on a Fregean view, (3*) is true.

The argument for (3*) on a Fregean view of propositions is the following.

> Necessarily, the proposition that Blair is wise exists only if the mode of presentation of Blair exists; necessarily, the mode of presentation of Blair exists only if Blair exists; therefore, necessarily, the proposition that Blair is wise exists only if Blair exists. The conclusion can be generalised in the following way: necessarily, a singular proposition exists only if the referent of the singular term exists, which is (3*).

The first premise follows from the Fregean conception of proposition constitution. The Fregean view is that propositions are constituted by modes of presentations, or senses, of the referents of the expressions of the sentence expressing the proposition. But could a

[23] Wiggins 1975, McDowell 1977,Evans 1982, McDowell 1986, and Wiggins 1999.

mode of presentation of an individual exist without that individual? I argue that this is not possible.

To begin, the propositions we are interested in are singular propositions, such as the proposition that Blair is wise. These singular propositions are propositions expressed by sentences containing ordinary proper names, demonstratives, or indexicals. As such, these singular terms do not introduce definite descriptions of their referents that mediate the referring relation. This requirement blocks the sort of objections Kripke levels against Fregean theories of reference that allow sense without reference.[24] In contrast, the Fregean theories of reference given by Wiggins, McDowell, and Evans do not allow for sense without reference, and theories of this type give rise to claim (3*) of the metaphysical argument for necessary existence.

Wiggins gives the following characterisation of sense:

> The sense of a proper name simply consists in its having been assigned whatever reference it has been assigned: to know the sense of *n* is to know to which entity *n* has been assigned, a single piece of knowledge which may be given in countless different ways by countless different descriptions. Any competent speaker who properly grasps a description or ostension given in such a context grasps it as leading him to the thing itself identified by the name of the thing.[25]

So if a speaker grasps the sense of the name, she knows which object that name refers to. For example, if I grasp the sense of 'Blair', I know of Blair that 'Blair' refers to him. This knowledge is *de re* knowledge, knowledge or a particular thing, and so it is not purely descriptive. So in our example, the proper name 'Blair' does not introduce a definite description as the mode of presentation of Blair constituting the proposition that

[24] Kripke's objections are forcefully stated in Kripke 1980.
[25] Wiggins 1975, p. 11.

Blair is wise because this mode of presentation is singular and not purely descriptive. And since the mode of presentation is singular and not purely descriptive, the mode of presentation is essentially a mode of presentation of Blair. Because the mode of presentation is essentially a mode of presentation of Blair, the mode of presentation exists only if Blair exists. Therefore, given the claim that the proposition that Blair is wise exists only if the mode of presentation of Blair exists, the proposition that Blair is wise exists only if Blair exists.

This conclusion can be generalised because nothing in the argument depends upon any special property Blair has. Thus, a singular proposition exists only if the referent of the singular term contained in a sentence expressing the proposition exists. This conclusion holds of necessity because nothing in the argument depends upon the nature of propositions in the actual world, that is, the premises of the argument are fundamental to the nature of propositions. Therefore, (3*) is true, even on a Fregean perspective. Now one might think that there are other Fregean theories of reference that do allow sense without reference, and thereby falsify (3*). But these theories are subject to the powerful objections Kripke gives to theories of reference that see names as abbreviating definite descriptions. So on grounds independent of necessary existence, these theories cannot be correct. Therefore, they are no threat to necessary existence.

Having argued that the objections to (3*) are founded on unsound arguments, and having argued that (3*) is true on both the Fregean and the direct-reference views, I conclude that (3*) is true *simpliciter* because these two views are the only viable views of the reference of proper names, demonstratives, and indexicals. Because (3*) is true, (3)

is true. Having argued for the premises of the metaphysical argument, I turn to the modal status of necessary existence itself.

THE NECESSITY OF NECESSARY EXISTENCE, SYMMETRY, AND THE BARCAN FORMULA

In my presentation of the metaphysical argument for necessary existence, I argued that necessary existence is itself a necessity. From this consequence, it follows that if the accessibility relation between possible worlds is symmetric, then the Barcan formula is true. In this section, I demonstrate this entailment, and I argue that it is a happy one.

Here is the argument for the entailment. If necessary existence is true, then every individual in the actual world exists in all possible worlds. Take one of these worlds, *w*. If necessary existence is itself necessary, then necessary existence is true in all possible worlds. Therefore, necessary existence is true in *w*. If necessary existence is true in *w*, then every individual in *w* exists in all possible worlds. Now the accessibility relation between worlds becomes important. If the accessibility relation between possible worlds is symmetric, then: if *w** is possible relative to *w*, then *w* is possible relative to *w**. In metaphorical language, if *w* can see *w**, then *w** can see *w*. Call this claim 'symmetry'. Symmetry can be formalised by the following formula, which is known as the Brouwerian axiom.

(B) $A \supset \Box\Diamond A$

Returning to the argument at hand, world *w* is possible relative to the actual world (the actual world can see *w*). Thus, if symmetry is true, the actual world is possible relative to

w (*w* can see the actual world). Consequently, if symmetry is true and necessary existence is itself a necessity, then the individuals in all possible worlds exist in the actual world, or, equivalently, the domains of all possible worlds are contained in the actual world.

If the domains of all possible worlds are contained in the actual world, then the Barcan formula is true. The Barcan formula is the following.

(BF) $\forall x \Box Fx \supset \Box \forall x Fx$

An equivalent version of (BF) is the following.

(BF*) $\Diamond \exists x Fx \supset \exists x \Diamond Fx$

For example, if it is possible that there is an individual such that it is the child of Wittgenstein and Bette Davis, then there is an individual such that it possibly is the child of Wittgenstein and Bette Davis. The Barcan formula says that given a world *w*, the domain of all worlds possible relative to *w* are contained in *w* itself. Thus, if the domains of all possible worlds are contained in the actual world, then the Barcan formula is true.

Therefore, we have the following entailment: if necessary existence is itself a necessity and symmetry is true, then the Barcan formula is true. Now the defender of necessary existence must accept that necessary existence is itself a necessity for the following reasons. In the argument for necessary existence, there was nothing special about this world that played a role in the argument; therefore, we can conclude that necessary existence is true in all possible worlds, which is just the claim that necessary existence is itself a necessity. Therefore, if the defender of necessary existence wants to

deny the Barcan formula, she must deny symmetry. We must now assess the plausibility of denying the symmetry versus the plausibility of accepting the Barcan formula.

It is possible for the defender of necessary existence to deny symmetry because the arguments for necessary existence do not require it. The strongest modal axiom required for these arguments is the K axiom,

(K) $\Box(A \supset B) \supset (\Box A \supset \Box B)$,

which makes no requirement on the accessibility relation between worlds. As a result, the defender of necessary existence need not accept symmetry. But I do not think that the defender of necessary existence should deny symmetry because this denial forces her to deny the claim that the best system for reasoning about metaphysical modality is the modal logic S5. This is so because in an S5 logic, the accessibility relation between worlds is reflexive, symmetric, and transitive. Formally, this requirement is embodied in the following axiom.

(S5) $\Diamond A \supset \Box\Diamond A$

It is widely thought that metaphysical modality should be formalised by an S5 modal logic because this sort of modality is completely unrestricted.[26] If metaphysical modality is completely unrestricted, then all worlds should be possible relative to one another. The modal logic containing the assumption that all worlds are possible relative to one another is S5. Therefore, if metaphysical modality is completely unrestricted, then S5 is the correct logic for reasoning about metaphysical modality. Because there are good reasons

[26] This thought is disputed by Hugh Chandler and Nathan Salmon. See Chandler 1976, Salmon 1986b, and Salmon 1989. For a response to Chandler and Salmon, see Williamson 1990a. For Salmon's response to Williamson, see Salmon 1993.

for thinking that metaphysical modality is completely unrestricted, then the defender of necessary existence should accept an S5 modal logic for metaphysical modality. As a result, the defender of necessary existence should accept symmetry. Consequently, the defender of necessary existence should accept the Barcan formula.

Those who believe that I have presented a convincing case for necessary existence and who also accept symmetry might think that we have found a sound argument for the Barcan formula. Given that the Barcan formula is highly contentious, it might be thought that this is a significant result. However, someone might use this argument to make the following objection to necessary existence.

> The acceptance of necessary existence forces us to choose between equally bad options, namely, either the denial of symmetry or the acceptance of the Barcan formula. That necessary existence forces this choice is evidence for the falsity of necessary existence. So rather than either denying symmetry or accepting the Barcan formula, we ought to deny the claim that is forcing this unpalatable choice, namely, necessary existence.

In response, the defender of necessary existence can argue that accepting the Barcan formula is not such a bad option, after all. To begin, she can observe that the metaphysics presented in Chapter 3 that is designed to accommodate necessary existence also accommodates the Barcan formula. This metaphysics can be utilised to disarm the apparent counter-examples to the Barcan formula by claiming that even though the possible child of Wittgenstein and Bette Davis does not have any naturalistic properties such as being spatially located, temporally located, or causally efficacious, nevertheless, it logically exists in this world.[27] Furthermore, the Barcan formula is a consequence of an S5 modal propositional logic paired with classical quantification theory. I have

[27] Williamson makes use of this strategy in Williamson 1998.

already argued that the defender of necessary existence should accept an S5 modal propositional logic and in Chapters 7 and 8 I defend classical quantification theory on grounds independent of necessary existence, so there is good reason to accept the Barcan formula. Finally, the particular logic that contains the Barcan formula, namely, S5+CQT, is the simplest modal logic, in terms of models, and the denial of the Barcan formula results in a complicated quantified modal logic as a theory of metaphysical modality. Such complications, it might be thought, are indicative of philosophical error.[28] Therefore, given that we have the following strong evidence for accepting the Barcan formula,

> the metaphysics necessary for necessary existence accommodates the Barcan formula;
>
> the Barcan formula is entailed by an S5 modal propositional logic, which is the best propositional logic for reasoning about metaphysical modality, together with classical logic, which we should also accept, or so I argue in Chapters 7-8; and
>
> the Barcan formula is contained in the simplest quantified modal logic, in terms of models;

the acceptance of the Barcan formula is not a bad option at all for the defender of necessary existence. I conclude that there is no objection to necessary existence from the conjunction of the Barcan formula and symmetry.

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[28] Chapter 4 demonstrates that Williamson would adopt such an attitude. Similarly, Max Cresswell argues that the complications required by the denial of the Barcan formula are evidence of the truth of the Barcan formula. See Cresswell 1991.

SUMMARY

I have presented and defended a metaphysical argument for necessary existence. Having defended the premises (1) – (3) of this argument, I claim that its conclusion is true: everything is a necessary existent. In the following chapter I give three further arguments for this conclusion. These arguments differ from the argument of this chapter in that they are arguments from formal, rather than metaphysical, considerations. After giving these three arguments, I explore how all four arguments, formal and metaphysical, are inter-dependent.

6

THREE FORMAL ARGUMENTS FOR NECESSARY EXISTENCE

In this chapter, I will present three arguments for necessary existence arising from formal considerations. These arguments are proofs done in the quantified modal logic that results from the combination of the propositional modal system K together with classical quantification theory. The Greek letters 'φ' and 'ψ' are taken to represent formulas, the italicised Roman letters '*x*' and '*y*' are used as individual variables, and the italicised Roman letter '*a*' is an individual constant. The truth-functional connectives, '$\supset$', '$\equiv$', '$\wedge$', '$\vee$', and '$\neg$', all receive their usual definitions.

THE MODAL LOGIC K+CQT

The axioms of K include all the well-formed formulas of the propositional calculus (PC):

(PC) If φ is a substitution instance of a valid well-formed formula of PC, then φ is an axiom.

To these non-modal axioms is added the modal axiom (K):

(K) $\Box(\varphi \supset \psi) \supset (\Box\varphi \supset \Box\psi)$

The axioms (PC) and (K) determine all the axioms of the modal system K. There are two primitive transformation rules: modus ponens and necessitation.

(MP) If $\varphi \supset \psi$ and φ are theorems, then so is ψ.

(N) If φ is a theorem, then so is $\Box\varphi$.

Finally, one definition is added:

($\Diamond/\Box$) $\Diamond\varphi =_{df.} \neg\Box\neg\varphi$

To this modal system we now add instances of the following axioms and definition of classical quantification theory:

($\forall 1$) $(\forall x\varphi \supset \varphi[y/x])$ where x and y are variables, y is free for x in φ, and $\varphi[y/x]$ results from replacing each free occurrence of x in φ by y.

($\forall 2$) $(\forall x(\varphi \supset \psi) \supset (\varphi \supset \forall x\psi))$ where x is not free in φ.

(Gen) If φ is a theorem, then so is $\forall x\varphi$.

(ID) $x = x$

($\exists/\forall$) $\exists x\varphi(x) =_{df.} \neg\forall\neg x\varphi(x)$

This completes the set of rules, axioms, and definitions sufficient for deriving necessary existence in three inter-related ways.

THE FIRST ARGUMENT

To begin this first argument, we derive the formula $\exists y\, x = y$.

(1) $x = x \supset [(\forall y(\neg x = y) \supset \neg x = x) \supset \neg \forall y(\neg x = y)]$ (PC)

(2) $x = x$ (ID)

(3) $[(\forall y(\neg x = y) \supset \neg x = x) \supset \neg \forall y(\neg x = y)]$ (1, 2, MP)

(4) $\forall y(\neg x = y) \supset \neg x = x$ ($\forall$1)

(5) $\neg \forall y(\neg x = y)$ (3, 4, MP)

(6) $\exists y\, x = y$ (5, Definition of $\exists$)

In Chapter 2, I claimed that the formula $\exists y\, x = y$ is logically equivalent to the formula *E!x*. Given this equivalence, we can now derive necessary existence.

(7) *E!x* (6)

(8) $\Box$*E!x* (7, N)

(9) $\forall x \Box$*E!x* (8, Gen)

(10) $\Box \forall x \Box$*E!x* (9, N)

The proof from (1) – (10) constitutes the first formal argument for necessary existence. Clearly, this proof relies on some of the most basic rules of inference and axioms of classical quantification theory and modal logic. In order to deny its conclusion, one of these basic principles must be denied. I will return to the most influential objections to this argument after giving the remaining two formal arguments for necessary existence.

The Second Argument

The second formal argument for necessary existence relies on the controversial converse Barcan formula:

(BFC) $\Box\forall x\varphi(x) \supset \forall x\Box\varphi(x)$.

This formula is controversial precisely because it, together with classical quantification theory, entails necessary existence. The derivation of the converse Barcan formula from the preceding axioms and rules of inference is the following:[1]

(11) $\forall x\varphi(x) \supset \varphi(x)$	($\forall$1)
(12) $\Box(\forall x\varphi(x) \supset \varphi(x))$	(11, N)
(13) $\Box(\forall x\varphi(x) \supset \varphi(x)) \supset (\Box\forall x\varphi(x) \supset \Box\varphi(x))$	(12, K)
(14) $\Box\forall x\varphi(x) \supset \Box\varphi(x)$	(11, 12, MP)
(15) $\forall x(\Box\forall x\varphi(x) \supset \Box\varphi(x))$	(14, Gen)
(16) $\forall x(\Box\forall x\varphi(x) \supset \Box\varphi(x)) \supset (\Box\forall x\varphi(x) \supset \forall x\Box\varphi(x))$	(15, $\forall$2)
(17) $\Box\forall x\varphi(x) \supset \forall x\Box\varphi(x)$	(15, 16, MP)

We can now derive necessary existence from the converse Barcan formula using the theorem $E!x$ proved for the first formal argument.[2]

(18) $E!x$	(7)
(19) $\forall xE!x$	(18, Gen)
(20) $\Box\forall xE!x$	(19, N)
(21) $\Box\forall xE!x \supset \forall x\Box E!x$	(BFC)
(22) $\forall x\Box E!x$	(20, 21, MP)
(23) $\Box\forall x\Box E!x$	(22, N)

[1] This proof is given in Kripke 1963 and in Prior 1967, p. 147.
[2] This derivation is suggested in Deutsch 1990 and given explicitly in Linsky and Zalta 1994.

The proof from (11) – (23) constitutes the second formal argument for necessary existence. The validity and soundness of this proof is highly controversial. Again, I consider the most influential objections to this argument after presenting the third argument for necessary existence.

THE THIRD ARGUMENT

This third argument requires a standard rule of inference, namely, existential generalisation, which is derived from (∀1) and (∀/∃).

(∃1) ($\varphi[y/x] \supset \exists x\varphi(x)$ where x and y are variables, y is free for x in φ, and $\varphi[y/x]$ results from replacing each free occurrence of x in φ by y.

In addition, the proof also requires a standard axiom derived from the (K) axiom.

(K*) $\Box(\varphi \supset \psi) \supset (\Diamond\varphi \supset \Diamond\psi)$.

With this rule of inference and this axiom in hand, I now proceed to the third proof of necessary existence.

(24) $\neg E!x \supset \exists x\neg E!x$	(∃1)
(25) $\Box(\neg E!x \supset \exists x\neg E!x)$	(24, N)
(26) $\Box(\neg E!x \supset \exists x\neg E!x) \supset (\Diamond\neg E!x \supset \Diamond\exists x\neg E!x)$	(25, K*)
(27) $\Diamond\neg E!x \supset \Diamond\exists x\neg E!x$	(25, 26, MP)
(28) $\neg\Diamond\exists x\neg E!x \supset \neg\Diamond\neg E!x$	(27, PC)

(29) $E!x$	(7)
(30) $\forall xE!x$	(29, Gen)
(31) $\Box\forall xE!x$	(30, N)
(32) $\neg\Diamond\neg\forall xE!x$	(31, $\Diamond/\Box$)
(33) $\neg\Diamond\neg\neg\exists x\neg E!x$	(32, $\exists/\forall$)
(34) $\neg\Diamond\exists x\neg E!x$	(33, PC)
(35) $\neg\Diamond\neg E!x$	(28, 34, MP)
(36) $\neg\neg\Box\neg\neg E!x$	(35, $\Diamond/\Box$)
(37) $\Box E!x$	(36, PC)
(38) $\forall x\Box E!x$	(37, Gen)
(39) $\Box\forall x\Box E!x$	(38, N)

The proof from (24) – (39) constitutes the third argument for necessary existence. I examine now the most influential objections that have been made to the validity and soundness of the three formal arguments presented above.

THREE OBJECTIONS TO THE THREE ARGUMENTS

If the conclusion of these three proofs is to be denied, any of the premises or rules of inference used in deriving the conclusion may be denied. That said, three elements common to these proofs have attracted the greatest controversy: first, the assertion of formulas containing free variables; second, the assumption that all models are non-empty; and third, the validity of the rule of necessitation. I defend each of these elements in turn

in the following three chapters. It is worth noting where these common elements occur in the proofs, alongside a brief statement of the challenges facing these elements. Importantly, one of these objection is also relevant to the metaphysical argument for necessary existence. In Chapter 5, I called this objection a 'formal objection' to the argument, and I show here how it provides a means for denying necessary existence.

Free Variables

Free variables are often used in each of the proofs. In the first proof, formulas containing free variables were asserted throughout the derivation and also in the statement of the formula $E!x$; the second proof begins with the assertion of the formula $\forall x\varphi(x) \supset \varphi(y)$ and utilises the formula $E!x$, both of which contain free variables; and the third proof also begins with the assertion of the formula $\varphi(x) \supset \exists x\varphi(x)$ and also utilises the formula $E!x$, both of which contain free variables. Denying that formulas containing free variables can be asserted as lines in proofs is the basis for Kripke's contention that the proof of the converse Barcan formula, (11) – (17), is invalid.[3] Though this objection poses a significant challenge to the formal arguments for necessary existence, it does not pose any difficulty for the metaphysical argument. This is so because the argument does not require the use of unbound variables. Kripke's contention will be considered in the following chapter, where I argue that this contention creates a quantification theory ill suited to reasoning about metaphysical modality.

[3] Kripke 1963.

Non-Empty Models

The assumption that all models are non-empty occurs crucially in each proof. This assumption is made in the first and second proof in the assertion of instances of the axiom ($\forall 1$), $\forall x\varphi \supset \varphi[y/x]$, in lines (4) and (11); again, in the third proof, in the assertion of an instance of the axiom ($\exists 1$), $\varphi[y/x] \supset \exists x\varphi(x)$ in line (24). Some have challenged this assumption, arguing that empty models should be allowed in order to afford an adequate logic for individuals such as fictional characters, mythical characters, and other such individuals that have been thought to be non-existent.

Importantly, this objection to the formal arguments also constitutes an objection to the metaphysical argument. Recall that the principles underlying (1) – (3) are the following:

(1*) $\Box(\varphi(x) \supset T[\varphi(x)])$

(2*) $\Box(T[\varphi(x)] \supset E!x)$

(3*) $\Box(E!x \supset E!x)$.

These principles entail the following formula: $\Box(\varphi(x) \supset E!x)$. If this formula is true, then all worlds are non-empty. Therefore, it may be objected that the assumption that all worlds are non-empty should not be built into the argument; we should be open to empty worlds.

I will examine this challenge from "free logic", logic without existential assumptions, in Chapter 7. I argue that we ought not to allow non-referring terms in a

logic that is meant to be a tool for reasoning about the world. Though such a logic may be of formal interest, it does not map modal reality, or so I argue.

The Rule of Necessitation

The rule of necessitation is evident throughout the proofs presented here. This rule is used in the first proof in lines (8) and (10), where it licences the inference from the formula $E!x$ to the formula $\Box E!x$ and also the inference from the formula $\forall x \Box E!x$ to the formula $\Box \forall x \Box E!x$. In the second proof, the rule is used in lines (12), (20) and (23), where it licences the inference from the formula $\forall x \varphi(x) \supset \varphi(y)$ to the formula $\Box \forall x \varphi(x) \supset \varphi(x)$, the inference from the formula $\forall x E!x$ to the formula $\Box \forall x E!x$, and also the inference from the formula $\forall x \Box E!x$ to the formula $\Box \forall x \Box E!x$. Finally, in the third proof the rule is used in lines (25), (31), and (39), where it licences the inference from the formula $\varphi(x) \supset \exists x \varphi(x)$ to the formula $\Box(\varphi(x) \supset \exists x \varphi(x))$, the inference from the formula $\forall x E!x$ to the formula $\Box \forall x E!x$, and the inference from the formula $\forall x \Box E!x$ to the formula $\Box \forall x \Box E!x$.

Some, notably Arthur Prior, argue against the rule of necessitation, maintaining that not all logical truths are necessary truths.[4] Specifically, on Prior's view, logical truths involving singular terms such as proper names, demonstratives, or indexicals, which refer to contingent individuals are not necessary truths. As a case in point, the logical truth, that if everything is wise, then Blair is wise, is not a necessary truth on Prior's view because Blair, on his view, is not a necessary existent, which may come as some relief to the leader of the Conservative party. Therefore, on Prior's view, the proposition that if everything is wise, then Blair is wise is not a necessary existent; from

[4] Prior 1957.

which it follows that the proposition that if everything is wise, then Tony Blair is wise, is not true in all possible worlds. Consequently, the proposition that if everything is wise, then Blair is wise is both a logical and a contingent truth. I discuss Prior's denial of the rule of necessitation and the modal logic that results from this denial in Chapter 9. While this objection poses an apparent difficulty for the formal arguments for necessary existence, it does not pose a threat to the metaphysical argument because it does not rely on the rule of necessitation.

SUMMARY

In this chapter, I gave three formal arguments for necessary existence and outlined the three most prominent objections to these arguments. I also noted that one objection, the objection from free logic, poses a common threat to the formal arguments and the metaphysical argument. In the following three chapters, I take up the crucial task of responding to these objections.

7

KRIPKE ON UNIVERSAL CLOSURE AND WORLD-RELATIVE DOMAINS

Two objections to the formal arguments for necessary existence emerge from Kripke's work on the syntax and semantics of modal logic. Following Quine, Kripke stipulates that only closed formulas should be allowed as theorems of quantified modal logic.[1] If this stipulation is accepted, the formal arguments for necessary existence offered in the previous chapter are either invalid or question begging. There is, however, some hope for my view, since I will contend that Kripke's stipulation creates a quantification theory ill suited to reasoning about metaphysical modality. If successful, my response would neutralise the syntactic challenge posed to necessary existence by Kripke's stipulation.

After considering Kripke's syntactic objection to the proofs for necessary existence from universal closure, I will turn to Kripke's influential semantic objection to necessary existence. In the same paper in which he makes his syntactic objection to a formal derivation of necessary existence, Kripke gives a semantical account of quantified modal logic that, unlike his previous work on logical modality, does not validate the converse Barcan formula and necessary existence.[2] In his 1959 paper, Kripke assumes a common domain for all possible worlds; however, in his 1963 paper, Kripke assumes

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[1] Kripke 1963. All page references refer to the reprinted version in Linsky 1971.

[2] Kripke's account of the semantics of logical modality which does validate the converse Barcan formula and necessary existence can be found in Kripke 1959. Kripke's account of the semantics of metaphysical modality which does not validate these theorems can be found in Kripke 1963.

world-relative domains. These world-relative domains allow for the variability of domains across possible worlds. In particular, all the elements of the domain of the actual world need not be included in the domains of all possible worlds on Kripke's world-relative domains. This possibility falsifies necessary existence. I argue that Kripke's later semantics is metaphysically misguided in that it incorporates a fundamental arbitrariness in its treatment of quantification over individuals in possible worlds.

THE SYNTACTIC OBJECTION: UNIVERSAL CLOSURE

Kripke stipulates that only closed formulas are theorems of quantified modal logic; an effect of this stipulation is that the converse Barcan formula is no longer derivable.[3] Recall that in the second proof for necessary existence, we asserted an instance of the axiom termed ($\forall$1):

(11) $\forall x\varphi(x) \supset \varphi(x)$.[4]

And by the rule of necessitation we inferred the following formula:

(12) $\Box(\forall x\varphi(x) \supset \varphi(x))$.

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[3] Quine originally proposed that only closed formulas are theorems. Quine makes this stipulation in his presentation of mathematical logic. Mathematical logic is a non-modal quantified logic, and Kripke's innovation is to apply the Quinean restriction to quantified modal logic as a way of blocking the derivation of the converse Barcan formula. For Quine's original presentation of this restriction, see Quine 1958, pp. 76-89.

[4] I retain the numbering from the previous chapter.

Now if Kripke's stipulation is accepted, these two formulas abbreviate the following formulas, respectively:

(11*) $\forall y(\forall x\varphi(x) \supset \varphi(y))$.

(12*) $\forall y\Box(\forall x\varphi(x) \supset \varphi(y))$.

In order to infer the second formula from the first, we must not only assume the rule of necessitation but also the converse Barcan formula, which is what we set out to derive. Therefore, given Kripke's syntactic restriction, the proof of the converse Barcan formula is either question begging, in that this formula is already assumed, or it is invalid. Because the second argument for necessary existence essentially relies on the converse Barcan formula, this argument, too, is either question begging or invalid if Kripke's restriction is heeded.

Kripke specifically targets the derivation of the converse Barcan formula in proposing this restriction, but its effects are not limited to the derivation of this formula. In particular, it renders the remaining two formal arguments for necessary existence invalid. The first proof begins with the assertion of the formula $E!x$.

(7) $E!x$

Applying the rule of necessitation to this formula yields,

(8) $\Box E!x$.

Now generalising over the free variable gives the result,

(9) $\forall x\Box E!x$,

which is necessary existence. But given Kripke's stipulation, this proof is either question begging or invalid. To see this, consider how (7) and (8) should be revised in light of the stipulation. Given that only closed formulas can be asserted as theorems, (7) becomes the following formula

(7*) $\forall x E!x$,

and (8) becomes the formula

(8*) $\forall x \Box E!x$.

In order to infer (8*) from (7*), we need the converse Barcan formula in addition to the rule of necessitation. But because the proof of the converse Barcan formula is either invalid or question begging on Kripke's account, this first formal proof of necessary existence is also either invalid or question begging on Kripke's account.

Just as the first two formal arguments for necessary existence are invalid or question begging on Kripke's account, the third argument can be shown to be either invalid or question begging as well. The third argument begins with the assertion of the formula

(24) $\neg E!x \supset \exists x \neg E!x$.

We then apply the rule of necessitation to obtain:

(25) $\Box(\neg E!x \supset \exists x \neg E!x)$.

But given Kripke's stipulation, (24) is really an abbreviation of the formula

(24*) $\forall y(\neg E!y \supset \exists x \neg E!x)$.

and (25) is an abbreviation of the formula

(25*) $\forall y \Box(\neg E!y \supset \exists x \neg E!x)$.

In order to infer (25*) from (24*) we require both the rule of necessitation and the converse Barcan formula. Since the proof of the converse Barcan formula is either question begging or invalid on Kripke's account it follows that the third formal argument for necessary existence is similarly question begging or invalid.

One can, of course, modify these proofs so that instead of using free variables, individual constants or rigid singular terms are used.[5] For example, instead of the formula $E!x$ we have the formula $E!a$ or the formula $E!t$, where 'a' is an individual constant and 't' is a rigid singular term. On either of these modifications, these proofs are immune to Kripke's syntactic objection. But since individual constants and rigid singular terms are banned from Kripke's logic, these modifications are unavailable. As a result, necessary existence cannot be derived in Kripke's logic.

RESPONDING TO THE SYNTACTIC OBJECTION

When Kripke's revised quantificational fragment is combined with the modal propositional logic K (or stronger logics such as T, B, S4, or S5), the resulting quantified modal logic is ill suited for reasoning about metaphysical modality. Quantified modal

[5] This point is well-recognised. It is mentioned in Garson's , Deutsch's, and Linsky and Zalta's discussion of Kripke's 1963 paper. See Garson 1984, Deutsch 1990, and Linsky and Zalta 1994.

logic is meant to be a logic for reasoning about metaphysical modality, and this reasoning will surely involve the use of rigid terms if Kripke's later account of metaphysical modality is correct. Claims such as that necessarily Hesperus is identical to Phosphorus and that Blair is essentially human clearly contain the rigid singular terms 'Hesperus', 'Phosphorus', and 'Blair' if we take on board the modal metaphysics and semantics presented in Kripke's *Naming and Necessity*.[6] But even apart from Kripke's own work on modal metaphysics, we do want to make use of rigid singular terms in our reasoning about metaphysical modality, if only to deny such claims as that Blair is essentially human. Consequently, since Kripke's quantified modal logic cannot contain rigid terms, it cannot be an adequate account of metaphysical modality. And if Kripke's quantified modal logic is not an adequate account of metaphysical modality, it cannot present a challenge to the truth of necessary existence.

THE SEMANTIC OBJECTION: WORLD-RELATIVE DOMAINS

Though Kripke's syntactic objection to the derivation of necessary existence fails, it is widely thought that his semantic objection to necessary existence is successful. That is, his semantics for quantified modal logic in which necessary existence is false is the most influential semantical account of quantified modal logic given to date, and it is supposed that this semantics accurately maps modal reality. I aim to show that this supposition is false. In this section, I introduce Kripke's semantics for quantified modal logic and argue that Kripke's meta-language is metaphysically problematic. I further argue that the

[6] Kripke 1980.

purported counter-example Kripke offers to the converse Barcan formula based on this semantics is similarly problematic.

In order to provide a semantics for quantified modal logic, Kripke introduces the concept of a model structure: a model structure is an ordered triple (**G**, **K**, ***R***) where **K** is a set, **G** $\in$ **K**, and ***R*** is a binary relation on **K**.[7] Intuitively, **K** is the set of possible worlds, **G** is the actual world, and **R** is the accessibility relation between worlds. Since the propositional modal logic we are considering is K, there is no requirement that ***R*** be symmetric, transitive, or even reflexive.

In order to provide a semantics for propositional modal logic, Kripke introduces the concept of a model: a model φ on a model structure (**G**, **K**, ***R***) is a binary function $\varphi(P, \mathbf{H})$ where P varies over atomic formulas and **H** varies over elements of **K** and the range of φ is {**T**, **F**}. Truth-values relative to worlds for complex formulas involving the connectives are defined inductively in the usual way. For '$\Box$', Kripke gives the following definition: $\varphi(\Box P, \mathbf{H}) = \mathbf{T}$ iff $\forall \mathbf{H}^* \in \mathbf{K}$: $\mathbf{H}\boldsymbol{R}\mathbf{H}^*$, $\varphi(P, \mathbf{H}^*) = \mathbf{T}$. Intuitively this says that P is necessarily true in **H** iff P is true in all worlds accessible to **H**.

Kripke next introduces the concept of a quantified model structure: a quantified model structure is a model structure (**G**, **K**, ***R***) together with a function D which assigns to each **H** $\in$ **K** a set $D(\mathbf{H})$, the domain of **H**. $D(\mathbf{H})$ is interpreted as the set of individuals existing in **H**. Kripke then adds an infinite list of individual variables $x, y, z, \ldots$, and a list of n-adic predicate letters $P^n, Q^n, \ldots$, for each non-negative integer n. Propositional variables, or atomic formulas, are 0-adic predicate letters. Well-formed formulas are constructed in the usual manner.

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[7] In my presentation of Kripke's semantics, I follow closely his own presentation in Kripke 1963.

Finally, Kripke prepares to define a quantificational model by extending the original concept of a model that assigned a truth-value to every atomic formula in every world. In an analogous fashion, Kripke supposes that for each world, any given *n*-adic predicate letter determines a certain set of ordered *n*-tuples. This set is the predicate letter's extension in that world. Formally, relative to an assignment of elements of $D(\mathbf{H})$ to variables, we have $\varphi(P(x), \mathbf{H}) = \mathbf{T}$ and relative to another assignment, we have $\varphi(P(x), \mathbf{H}) = \mathbf{F}$. The set of individuals of which the predicate P is true in a world is the predicate's extension in that world. Kripke then confronts the problem of whether or not to assign a truth-value to $\varphi(P(x), \mathbf{H})$ if x is assigned a value in the domain of a world **H*** and not **H**.

Kripke rejects the Frege-Strawson approach, which would not assign the formula a truth-value, because this approach leads to a modification in the standard modal logic: either revise modal propositional logic, as Prior does, or restrict the rule of substitution, as Hintikka does. Instead, Kripke adopts the Russellian approach, which assumes that 'a statement containing free variables has a truth-value in each world for every assignment to its free variables'.[8] In the present case, if x is assigned a value in the domain of a world **H*** and not **H,** then $\varphi(P(x), \mathbf{H}) = \mathbf{F}$.

Now Kripke can formally define a quantificational model. Let $\mathbf{U} = \cup_{\mathbf{H} \in \mathbf{K}} D(\mathbf{H})$ and $\mathbf{U}^n$ be the *n*th Cartesian product of **U** with itself. A quantificational model on a quantificational model structure (**G**, **K**, ***R***) is a binary function $\varphi(P^n, \mathbf{H})$ such that P^n ranges over *n*-adic predicate letters and **H** ranges over elements of **K**. When $n = 0$, $\varphi(P^n, \mathbf{H}) = \mathbf{T}$ or **F**. When $n \geq 1$, $\varphi(P^n, \mathbf{H})$ is a subset of $\mathbf{U}^n$. Kripke then inductively defines for

[8] Kripke 1963, p. 66.

every formula A and $\mathbf{H} \in \mathbf{K}$, a truth-value for $\varphi(A, \mathbf{H})$ relative to an assignment of elements of **U** to the free variables in A. It is clear how to assign a truth-value to propositional variables. Kripke then defines truth-values for atomic formulas. Where P^n is an n-adic predicate letter and $n \geq 1$, for the formula $P^n(x_1, \ldots, x_n)$, relative to an assignment of elements of **U** $a_1, \ldots, a_n$ to $x_1, \ldots, x_n$, $\varphi(P^n(x_1, \ldots, x_n), \mathbf{H}) = \mathbf{T}$ if the n-tuple $a_1, \ldots, a_n$ is a member of $\varphi(P^n, \mathbf{H})$; otherwise, $\varphi(P^n(x_1, \ldots, x_n), \mathbf{H}) = \mathbf{F}$ relative to the assignment. Given this procedure for assigning truth-values to atomic formulas, truth-values of complex formulas involving the connectives can be assigned truth-values in the usual way.

Kripke then gives the procedure for assigning truth-values of formulas containing the universal quantifier. Given a formula $A(x, y_1, \ldots, y_n)$, where x and y_i are the only free variables contained in this formula, and an assignment of truth-values $\varphi(A(x, y_1, \ldots, y_n), \mathbf{H})$ has been defined for each assignment to the free variables x and y_i. We can then define the truth-value of the universally quantified formula $\forall xA(x, y_1, \ldots, y_n)$: $\varphi(\forall xA(x, y_1, \ldots, y_n), \mathbf{H}) = \mathbf{T}$ relative to an assignment of elements of **U**, $b_1, \ldots, b_n$, to the free variables $y_1, \ldots, y_n$ if $\varphi(A(x, y_1, \ldots, y_n), \mathbf{H}) = \mathbf{T}$ for all assignments $a, b_1, \ldots, b_n$ to x, $y_1, \ldots, y_n$, respectively, such that a is an element of $D(\mathbf{H})$. Kripke has made a crucial move in the last clause of this definition. Quantification in a world, on this definition, is restricted to quantification only over the elements that exist in that world. Thus, Kripke bars unrestricted quantification.

This restriction on quantification has a significant impact on our capacity to reason about modal metaphysics. In modal metaphysics, we often want to discuss absolutely everything. For example, we might want to discuss the question: is absolutely

every universal instantiated? In order to formalise this question, we require unrestricted quantification because the question concerns not just the universals in this world, but the universals in every world. Thus, we need an absolutely unrestricted quantifier. And this, Kripke will not allow us. Therefore, there appears to be the beginnings of a case against Kripke's semantics as a useful tool for reasoning about metaphysical modality.

In order to illustrate this semantics, Kripke attempts to give a counter-example to the Barcan formula and a counter-example of the converse Barcan formula.[9] Before discussing these purported counter-examples, let me briefly sketch the motivation for them. If the Barcan formula is valid, then we have the following consequence: if $\mathbf{H}R\mathbf{H}^*$, then $D(\mathbf{H}^*) \subseteq D(\mathbf{H})$. If the converse Barcan formula is valid, then we have the following consequence: if $\mathbf{H}R\mathbf{H}^*$, then $D(\mathbf{H}) \subseteq D(\mathbf{H}^*)$. If both the Barcan formula and the converse Barcan formula are valid, then $D(\mathbf{H})$ is a constant function for all arguments $\mathbf{H}$ where $\mathbf{G}R\mathbf{H}$. That $D(\mathbf{H})$ is a constant function is precisely what Kripke wants to deny. He writes that $D(\mathbf{H})$ 'need not be the same set for different arguments $\mathbf{H}$, just as, intuitively, in worlds other than the real one, some actually existing individuals may be absent, while some new individuals, like Pegasus, may appear.'[10] In effect, Kripke introduces world-relative domains that do not validate the Barcan formula, the converse Barcan formula, or necessary existence.

This move represents a radical shift in Kripke's semantics for quantified modal logic. In his 1959 paper, Kripke follows Carnap in taking possible worlds to be models or complete assignments of extensions of a given language that are all but the same as

[9] Strictly speaking, these purported counter-examples are counter-models.
[10] Kripke 1963, p. 65.

Carnap's state descriptions.[11] In this conception of possible worlds, any consistent complete assignment counts as a possible world. Both Kripke and Carnap assume a single domain for all possible worlds – a conception that validates the Barcan formula, the converse Barcan formula, and necessary existence. Indeed, some authors have stressed that the Barcan formula is implicit in Carnap's work independent of and even prior to Barcan (Marcus)'s work.[12] Furthermore, along with Carnap, Kripke was working with logical as opposed to metaphysical modality.[13]

However, in 1963 Kripke initiates the 'metaphysical turn' in semantics.[14] Instead of identifying possible worlds with models akin to state descriptions, Kripke takes possible worlds as non-language-bound primitive points. This identification allows him to define metaphysical modality in terms of the structure of these points: possible assignments of extensions are determined by what is primitively given at these points. With this conception of possible worlds, and with 'metaphysical reality' behind these points, Kripke introduces world-relative domains.[15] Kripke's motivation, then, for introducing world-relative domains is a metaphysical one: he wants to allow for contingent existence. In order to account for contingent existence, he revises the semantics of quantified modal logic.

The metaphysical argument for necessary existence can be seen as an argument to the effect that there are good metaphysical reasons for not revising the semantics of quantified modal logic to allow for world-relative domains. Because the three premises

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[11] See Carnap 1946.
[12] Marcus (then Barcan) introduces the Barcan formula in Barcan 1946. Nino Cocchiarella argues that Carnap was the first to argue for the logical truth of the Barcan formula by validating it in terms of the substitutional interpretation of the quantifier in his state description semantics. See Cocchiarella 1984, p. 320.
[13] Assuming the controversial view that logical modality is distinct from metaphysical modality.
[14] Joseph Almog emphasises this turn in Kripke's work in Almog 1986. pp. 216-218.
[15] Almog 1986, p. 218.

of this argument entail necessary existence, a claim which validates the non-world-relative domains, the semantics should not be revised so as to include world-relative domains. In effect, I argue for a partial return to Kripke's 1959 semantics as a semantics for metaphysical as well as logical modality. I argue that a semantics requiring that all domains contain every actual individual is the most metaphysically adequate modal semantics.

But before I make this argument, I want to consider Kripke's supposed counter-models of the Barcan formula and the converse Barcan formula.[16] Recall that the Barcan formula is the formula $\forall x\Box\varphi(x) \supset \Box\forall x\varphi(x)$ and the converse Barcan formula is the formula $\Box\forall x\varphi(x) \supset \forall x\Box\varphi(x)$. Kripke's counter-models to both the Barcan formula and the converse Barcan formula involve varying domains.[17]

For the Barcan formula, he extends (**G**, **K**, ***R***) to a quantificational model structure by defining the domain function $D(\mathbf{G}) = \{a\}$ and $D(\mathbf{H}) = \{a, b\}$where $\mathbf{G}\boldsymbol{R}\mathbf{H}$ and a is distinct from b. He then defines a monadic predicate letter P and a model φ where $\varphi(P, \mathbf{G}) = \{a\}$ and $\varphi(P, \mathbf{H}) = \{a\}$. Clearly, $\forall x\Box P(x)$ is true in **G** when x is assigned a because a is the only element in the domain of **G** and a is in the extension of P in both **G** and **H**. But $\varphi(P(x), \mathbf{H}) = \mathbf{F}$ when b is assigned to x so $\varphi(\Box\forall xP(x), \mathbf{G}) = \mathbf{F}$. So we have $\varphi(\forall x\Box P(x), \mathbf{G}) = \mathbf{T}$ and $\varphi(\Box\forall xP(x), \mathbf{G}) = \mathbf{F}$. Therefore, the Barcan formula is false in **G**.

In the case of the converse Barcan formula, Kripke defines $D(\mathbf{G}) = \{a, b\}$ and $D(\mathbf{H}) = \{a\}$ where a is distinct from b. Let $\varphi(P, \mathbf{G}) = \{a, b\}$ and $\varphi(P, \mathbf{H}) = \{a\}$ such that P is a given monadic letter. In this model, $\forall xP(x)$ is true in both **H** and **G**, so $\varphi(\Box\forall xP(x),$

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[16] Kripke 1963, pp. 67-68.

[17] B. J. Copeland uses a similar strategy to provide counter-models to the Barcan formula and the converse Barcan formula given a substitutional interpretation of the quantifier (Kripke interprets the quantifier referentially). See Copeland 1982 and Copeland 1985.

G) = **T**. But $\varphi(P(x), \mathbf{H}) = \mathbf{F}$ when x is assigned b. So when x is assigned b, $\varphi(\Box P(x), \mathbf{G})$ = **F**. Thus, $\varphi(\forall x \Box P(x), \mathbf{G}) = \mathbf{F}$ while $\varphi(\Box \forall x P(x), \mathbf{G}) = \mathbf{T}$, which is a counter-example to the converse Barcan formula. In what follows, I concentrate on Kripke's counter-example to the converse Barcan formula because the defence of this formula is necessary for defending the second formal derivation of necessary existence.

If we take Kripke's formal semantics to be an adequate tool for reasoning about modal reality, then the Barcan formula, its converse, and necessary existence are false. But this semantics is inconsistent with plausible metaphysical principles. These principles are the three premises of the metaphysical argument for necessary existence. Because Kripke's semantics is inconsistent with these principles, we should deny that this semantics is an adequate tool for reasoning about modal reality. We then have no reason to think that there are counter-examples to the Barcan formula, its converse, or necessary existence.

Before proceeding to metaphysical difficulties with Kripke's semantics, a formal point needs to be made. Notice that though Kripke does not allow unrestricted quantification in the object language, that is, quantification in a world is restricted to only the objects in that world, Kripke does allow unrestricted quantification in the meta-language, that is, one can quantify over the objects in all worlds. That unrestricted quantification is permissible in the meta-language is shown by his defining $P(x)$ to be false in **H** when b, which does not exist in **H**, is assigned to x. Thus, unrestricted quantification is permissible in the meta-language and such quantification is not permissible in the object language. The question then arises: What justifies this asymmetry?

This asymmetry not only appears to be arbitrary, it also appears to raise a serious metaphysical problem for Kripke's semantics. If a semantics is ontologically committed to those individuals it quantifies over, then Kripke's semantics for quantified modal logic is ontologically committed to mere *possibilia*. In Kripke's meta-language, we can quantify over individuals that do not actually exist, while in the object language we cannot. Thus, from the point of view of the object language, these individuals are only merely possible because they are not in the domain of the actual world; but from the point of view of the meta-language, these individuals exist because they are in the domain of worlds other than the actual world. What sense are we to make of this treatment of quantification? Do possible individuals exist, or not?

In addition to embodying a seemingly arbitrary asymmetry between quantification in the object language and the meta-language and being ontologically committed to merely possible individuals, this semantics is inconsistent with the premises of the metaphysical argument for necessary existence. This inconsistency is unsurprising, but I think that it is worth bringing out. Kripke notes that his counter-example to the converse Barcan formula 'depends on asserting that, in **H**, $P(x)$ is actually false when x is assigned b; it might thus disappear if, for this assignment, $P(x)$ were declared to lack truth-value in **H**'.[18] Further, he contends that in this case 'we will still have a counter-example if we require a necessary statement to be true in all possible worlds (Prior's '*L*'), but not if we merely require that it never be false (Prior's '*NMN*')'.[19] It is my contention, however, that Kripke's counter-example depends not only on the denial of Prior's account of the

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[18] Kripke 1963, p. 68.
[19] Kripke 1963, p. 68. In this quote, '*L*' denotes the necessity operator, '*N*' denotes the negation operator, and '*M*' denotes the possibility operator.

non-duality of the modal operators, but also on the denial of the second or third premise of the metaphysical argument necessary existence.

In Kripke's counter-example to the converse Barcan formula, we have $\varphi(P(x), \mathbf{H}) = \mathbf{F}$ when x is assigned b. Consequently, $\varphi(\neg P(x), \mathbf{H}) = \mathbf{T}$ when x is assigned b. Recall that the principle underlying premise one of the metaphysical argument is the following: $\Box(\varphi(x) \supset T[\varphi(x)])$, where $\varphi(x)$ is any formula in which 'x' appears free. By this principle, if $\varphi(\neg P(x), \mathbf{H}) = \mathbf{T}$, the proposition expressed by the formula $\neg P(x)$ is true in **H** ($T[\neg P(x)]$). I take it that Kripke affirms this principle in his discussion of Prior and Strawson, where he denies Prior's view that the necessity operator and the possibility operator are not dual operators and he further denies Strawson's view that propositions expressed by sentences containing non-referring singular terms are without truth-value.

We proceed now to the principle underlying the second premise of the metaphysical argument. This principle is the claim that, necessarily, if a proposition is true, then it exists ($\Box(T[\varphi(x)] \supset E![\varphi(x)])$). Thus, if the proposition expressed by $\neg P(x)$ is true in **H**, then it exists in **H**. Though there is no evidence in Kripke's papers under consideration that he would either accept or deny this claim, it has been reported that Kripke maintains something relevantly similar to this claim. Specifically, Nathan Salmon reports that Kripke's view is that though 'the doctrine that existence is not itself a property but a prerequisite for having any properties' is obscure, it is 'in some sense true'.[20]

Finally, recall the principle underlying the third premise of the metaphysical argument: necessarily, if a proposition expressed by a sentence contains a genuinely

[20] Salmon 1998, p. 313, n. 29.

referring singular term exists, then the referent of that singular term exists ($\Box(E![\varphi(x)] \supset E!x)$). Thus, if the proposition expressed by $\neg P(x)$ exists in **H**, then the referent of 'x' exists in **H**. By hypothesis, the referent of 'x' in **H** is b. But, also by hypothesis, b does not exist in **H**. Therefore, if we accept that Kripke's formal semantics maps modal reality, we have to deny one of the principles underlying the metaphysical argument for necessary existence. As these principles are all true, or so I argued in that chapter, we must conclude that Kripke's formal semantics does not model modal reality. Though Kripke's semantics is of great formal interest, it is not an adequate tool for reasoning about metaphysical modality.

SUMMARY

In this chapter, I examined Kripke's syntactic and semantic proposals for invalidating necessary existence. While the syntax and semantics he presents may be or formal interest, it cannot serve as a tool for reasoning about modal reality. I argued that his syntactic requirement, which allows only closed formulas to be asserted, is ill suited to metaphysical modality. Furthermore, the semantic proposal creates metaphysical difficulties. I conclude that both the syntactic and semantic parts of his proposal are metaphysically inadequate formal tools.

Kripke's proposals have been very influential. The problem with his syntactic proposal has been recognised for some time. In the following chapter, I will discuss the most influential proposal for responding to this problem, namely, the adoption of free logic. This proposal involves the adoption of Kripke's semantics, including his world-relative domains and a radical revision of classical quantification theory.

8

FREE QUANTIFIED MODAL LOGIC

Kit Fine's combination of Kripke's variable domain semantics with a free quantified modal logic has gained wide acceptance as a metaphysically adequate and formally useful logic for facilitating modal reasoning.[1] Allen Hazen appears to regard the adoption of such a logic as a foregone conclusion when he recalls that in his doctoral dissertation he constructed a universally free logic 'which, after all, is what one wants for the logic of world-restricted quantification in a system of quantified modal logic countenancing contingent existence'.[2] Nathan Salmon seems to agree with Hazen. 'Of course,' Salmon writes, 'since such merely possible individuals as Noman have properties even though they do not exist, if our quantifiers are actualist, then the classical logical rules of universal instantiation and existential generalization are fallacious. Instead we have the free logical versions.'[3] Finally, James Garson claims that free quantification theory is 'much better suited' than classical quantification theory to a modal logic with world-relative domains and the objectual interpretation of the quantifiers. He concludes that 'we should adopt free logic'.[4] Among those who support Garson's adoption of free quantification theory as the quantificational base for

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[1] Fine 1978; Kripke 1963.
[2] Hazen 1990, pp. 502-503.
[3] Salmon 1987, p. 92.
[4] Garson 1984, p. 261.

propositional modal logic are Graeme Forbes[5] and Charles Chihara.[6] Because free quantified modal logic has proved to be such an influential logic for reasoning about modal reality, it is imperative that I examine its treatment of necessary existence.

Fine's free quantified modal logic is a modal logic that brings together an S5 modal propositional logic and a free quantification base. An S5 modal propositional logic includes the propositional modal logic used in the formal arguments for necessary existence. A free quantification theory is the quantification theory remaining when the formula $\exists y(x = y)$ is removed as a theorem of classical quantification theory. In contrast to classical quantification theory, free quantification theory allows for the empty domain – in other words, the range of the quantifiers can be empty. Consequently, universal instantiation and existential generalisation must be restricted so that the individual constants and free variables denote "existent objects." The restrictions on these principles block the three formal derivations of necessary existence given in Chapter 6. The metaphysical argument of Chapter 5 is also unsound given free quantification theory. Fine's work, therefore, poses a significant challenge to the truth of necessary existence. In the following section, I will discuss the principles of free quantification theory and explore how these principles block the derivation of necessary existence.

Blocking Necessary Existence: The Formal Arguments

The following two quantification principles are used to derive necessary existence:

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[5] Forbes 1985.
[6] Chihara 1998.

($\forall$1) ($\forall x\varphi \supset \varphi[y/x]$) where x and y are variables, y is free for x in φ, and $\varphi[y/x]$ results from replacing each free occurrence of x in φ by y.

(Gen) If φ is a theorem, then so is $\forall x\varphi$.

The analogues of $\forall$1 and Gen in free quantification theory[7] are:

($\forall$1F) $\forall x\varphi \supset (E!y \supset \varphi[y/x])$ where x and y are variables, y is free for x in φ, and $\varphi[y/x]$ results from replacing each free occurrence of x in φ by y.

(GenF) If $E!y \supset \varphi[y/x]$ is a theorem, then so is $\forall x\varphi$.

With this quantification theory and the propositional modal logic K, we cannot derive necessary existence. This is so simply because the formula $\exists y(x = y)$, which I have taken to be logically equivalent to the formula $E!x$, is no longer a theorem if these principles are accepted. As each of the formal arguments for necessary existence essentially contain the assertion of the formula $E!x$ as a theorem, these arguments are valid only if this formula is a theorem. But since this formula is not a theorem in free quantification theory, these arguments are invalid in this quantification system.

Before leaving the discussion of the formal arguments for necessary existence, it is worth mentioning that a free quantification version of the converse Barcan formula can be derived. This version of the converse Barcan formula is the following formula.

(FBFC) $\Box\forall x\varphi(x) \supset \forall x\Box(E!x \supset \varphi(x))$.

The proof proceeds in the following manner.

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[7] There is a great variety of free quantification theories on the market. For the purposes of defending necessary existence, I am interested in only the one characterised by the axioms mentioned in the text. I am interested in only this version of free quantification theory because it is the quantification theory Fine pairs with an S5 modal propositional logic, and since Fine's work, it has been the most influential version of free quantification theory in modal logic.

(1)	$\forall x\varphi(x) \supset (E!x \supset \varphi(x))$	($\forall$1F)
(2)	$\Box(\forall x\varphi(x) \supset (E!x \supset \varphi(x)))$	(1, N)
(3)	$\Box(\forall x\varphi(x) \supset (E!x \supset\varphi(x))) \supset (\Box\forall x\varphi(x) \supset \Box(E!x \supset \varphi(x)))$	(2, K)
(4)	$\Box\forall x\varphi(x) \supset \Box(E!x \supset \varphi(x))$	(2, 3, MP)
(5)	$\Box\forall x\varphi(x)$	(Assumption)
(6)	$\Box(E!x \supset \varphi(x))$	(4, 5, MP)
(7)	$E!x \supset \Box(E!x \supset \varphi(x))$	(6, $\supset$ Intro)
(8)	$\forall x\Box(E!x \supset \varphi(x))$	(7, GenF)
(9)	$\Box\forall x\varphi(x) \supset \forall x\Box(E!x \supset \varphi(x))$	(5, 8, $\supset$ Intro)

This formula will prove important in my arguments against the adoption of free quantified modal logic and in my discussion of Plantinga's approach to modality *de re* in Chapter 10. I turn now to the implications of the adoption of free logic on the soundness of the metaphysical argument for necessary existence.

Blocking Necessary Existence: The Metaphysical Argument

Recall that the principles underlying the metaphysical argument of Chapter 5 are the following.

(1*) $\Box(\varphi(x) \supset T[\varphi(x)])$

(2*) $\Box(T[\varphi(x)] \supset E![\varphi(x)])$

(3*) $\Box(E![\varphi(x)] \supset E!x)$

By the transitivity of the strict conditional, these principles entail the claim: $\Box(\varphi(x) \supset E!x)$. Hence, if an individual is in the extension of any predicate or relation in a world w, that individual exists in w. This claim is clearly inconsistent with a central claim of free quantification theory. In free quantification theory, free variables and individual constants can refer to individuals outside the range of the quantifiers. Thus, one cannot infer the formula $E!x$ from the formula $\varphi(x)$, even when $\varphi(x)$ is atomic. Consequently, one of the premises of the metaphysical argument must be taken to be false if free quantified modal logic is adopted. The obvious premise to be denied on the free logical approach is the second premise. Because one cannot infer from the claim that an individual has a property in a world that the individual exists in that world, it cannot be inferred that a proposition exists in a world from the assumption that the proposition is true in that world. We can now see precisely why the argument for necessary existence is unsound given the free logical treatment of free variables and individual constants.

There is a further difficulty with the metaphysical argument on the free logical approach. As noted above, we can deduce the formula $\Box(\varphi(x) \supset E!x)$ from the principles underlying the premises of the metaphysical argument. The next step in this argument is generalise over the free variable to obtain the formula $\forall x\Box(\varphi(x) \supset E!x)$. But we can make this generalisation only if we have the formula $E!x$ as an assumption. Since this assumption is absent from the metaphysical argument, it is invalid on the free logical approach. Having outlined the difficulties posed by free quantified modal logic for necessary existence, I turn now to the arguments for the adoption this logic.

ARGUMENTS FOR FREE QUANTIFIED MODAL LOGIC

In this section, I consider the following four arguments for free quantified modal logic: (i) it is necessary to deal with sentences such as 'Pegasus is a winged horse'; (ii) it is necessary to block necessary existence; (iii) it is necessary to block the derivation of the claim that there must have been something; and (iv) the adoption of free quantified modal logic follows from the view that logic should be metaphysically neutral.

Much of the motivation for the adoption of free logic centres on considerations having to do with empty names. For example, it is thought that the claim that Pegasus is a winged horse should not entail the claim that Pegasus exists. This is so because it is thought that the claim that Pegasus is a winged horse is true while the claim that Pegasus exists is false. The way to avoid this entailment, it is argued, is to adopt the free logical approach where the fact that an individual has a property does not entail that that individual exists.

I dealt with this example, and several like it, in Chapter 2 as an objection to the Existence Principle. There, I argued that sentences such as 'Pegasus is a winged horse' either do not express a proposition at all or express a false proposition. If 'Pegasus is a winged horse' is uttered in a storytelling context, then this sentence does not express a proposition. Sentences uttered in storytelling contexts do not purport to make claims about the way the world is. Because propositions are claims about the way the world is, sentences uttered in storytelling contexts do not express propositions. If 'Pegasus is a winged horse' does not express a proposition, then it cannot form the basis for a challenge to the Existence Principle or serve to motivate the adoption of free logic.

Now if 'Pegasus is a winged horse' is uttered in a context of literary criticism, this sentence does express a proposition. In this context, 'Pegasus' refers to a literary character, and literary characters are cultural artefacts. Because cultural artefacts are not the type of thing that can be winged or be a horse, 'Pegasus is a winged horse' expresses a false proposition. Again, this sentence presents no counter-example to the claim that an individual has a property only if that individual exists. Thus, though the adoption of free logic is sufficient for dealing with such examples, it is hardly necessary. Therefore, one cannot validly argue from the claim that we require a logic to deal with sentences such as 'Pegasus is a winged horse' to the claim that we must adopt free quantification theory.

I turn now to the second and third arguments for free quantified modal logic. Chihara notes that the free logical approach blocks the derivation of necessary existence and the derivation of the formula $\Box\exists x E!x$. 'It seems to me,' Chihara writes, 'that it is a contingent fact that anything exists at all'.[8] So, presumably, Chihara concludes, the free logical approach must be the correct approach. Even granting the premise that the derivation of these theorems is a problem, however, this conclusion – that it is *necessary* to adopt the free logical approach – does not follow from the premise that adopting the free logical approach is *sufficient* for blocking the derivation of these theorems. In order to avoid necessary existence, one could revise the modal propositional logic instead of the quantification theory, as Arthur Prior and others do. In order to avoid the derivation of the claim that there must have been something, one could adopt the Kant-Frege-Russell view of the meaning of the existence predicate. Given this view, the claim that there must have been something cannot be formally stated. Thus, though the adoption of

[8] Chihara 1998, p. 11.

a free quantified modal logic is sufficient for avoiding the derivation of necessary existence and the claim that there must have been something, it is not necessary to do so.

There is one further argument that, if sound, does necessitate the adoption of free logic. It takes the following form:

> Logic should not contain any metaphysical presuppositions, such as existence assumptions. Thus, one should not assume that domains are non-empty, and it should not be assumed that all singular terms refer to individuals that exist or to any individual at all. A quantified logic embodying such characteristics is a free quantified logic. Therefore, in order to purify logic of metaphysics, one must adopt a free quantified logic.

Though valid, this argument is unsound. The assumption, that logic should not contain any metaphysical presuppositions, is false. I argued against this assumption in Chapter 4, and I will not repeat here those arguments.

Before leaving this argument, it is worth noting that Fine, Forbes, and Chihara cannot appeal to this argument in support of their adoption of a free quantified modal logic. This is so because each philosopher postulates that the union of all the domains of the worlds is non-empty. That is, they postulate that the formula $\Diamond\exists x E!x$ is true. If logic should not contain any metaphysical assumptions, such as the assumption that every domain is non-empty ($\Box\exists x E!x$), it should not be assumed that any domain is non-empty ($\Diamond\exists x E!x$). If logic is to be truly metaphysically neutral, then one cannot build into it any existential assumptions whatsoever, not even the assumption that there might have been something.

Forbes appears guilty of an inconsistency in this regard. In a response to David Lewis's objections to Forbes's version of counterpart theory, Forbes criticises Lewis's

version of counterpart theory by noting that Lewis's theory entails the truth of the formula $\Box\forall x\Box(Fx \supset E!x)$. Forbes claims that this entailment 'is a drawback of Lewis's scheme which he himself [Lewis] must recognise since he agrees with Kaplan that logic "should *serve* philosophical ideologies, not constrain them"'.[9] Presumably, Forbes also agrees with Kaplan, and, consequently, Forbes's logical system should not contain the postulate that some domain is non-empty. However, since Forbes's system does contain such a postulate, it appears that Forbes is guilty of an inconsistency between his view of the metaphysical neutrality of logic and his postulation of the claim that there might have been something. Having argued that the arguments for the adoption of free quantified modal logic are unsound, I now turn to an argument against the adoption of this logic.

AN ARGUMENT AGAINST FREE QUANTIFICATION THEORY

The argument against free quantification theory assumes a Tarskian account of logical consequence. On the Tarskian account, in order to determine whether or not a conclusion is a logical consequence of a set of premises, the interpretations of the logical elements of the conclusion and premises are held fixed while the interpretations of the non-logical elements are varied. If none of the arguments generated from varying the non-logical elements are such that the premises are true and the conclusion false, then the conclusion is a logical consequence of the premises. This account of logical consequence is a natural and theoretically fruitful account.

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[9] Forbes 1987, p. 151. The quotation comes from a lecture given by Kaplan that has since been published as Kaplan 1995. See p. 42 for Kaplan's discussion of this issue. Lewis quotes Kaplan in Lewis 1986, p. 105 (Lewis's emphasis). Forbes repeats this criticism of Lewis in Forbes 1990, p. 169.

Importantly for our concerns, the Tarskian account of logical consequence validates the inference from the formula $\forall x\varphi(x)$ to the formula $\varphi(x)$, where x is free in φ. In order to determine whether or not $\varphi(x)$ is a logical consequence of $\forall x\varphi(x)$, we must first give an interpretation to $\varphi(x)$. Now in order to give an interpretation to $\varphi(x)$, a referent must be assigned to the free variable. If the free variable receives no assignment, then the formula $\varphi(x)$ does not express a proposition. Because there is no proposition to be evaluated for truth-value, logic does not apply to this case. Thus, if the Tarskian account of logical consequence applies to formulas containing free variables, then those free variables must always receive an assignment. Thus, free variables always refer on the Tarskian account of logical consequence. Now if we apply this conclusion to claims relevant to the derivation of necessary existence, such as the free version of the converse Barcan formula,

(FBFC) $\Box\forall x\varphi(x) \supset \forall x\Box(E!x \supset \varphi(x))$.

we see that the (FBFC) is going to be equivalent to the classical version of the converse Barcan formula because $E!x$ will always be true. Thus, there is no need to adopt free logical principles.

SUMMARY

This chapter examined the free logical objection to the four arguments previously presented for necessary existence. I argued that three of the arguments supporting the adoption of free quantified modal logic are invalid. These arguments included an

argument from so-called counter-examples to the Existence Principle, such as: Pegasus is a winged horse but Pegasus does not exist. I argued that this example does not necessitate the adoption of free logic. The other two arguments are more formal in nature, and they are based on the observation that in free quantified modal logic one can derive neither necessary existence nor the claim that necessarily something exists. I argued that even if these claims are problematic, one cannot validly argue from this observation to the necessity of the adoption of free quantified modal logic. I then presented a valid argument for free logic. This argument is founded on the assumption that logic should be metaphysically neutral. Based on arguments drawn from Chapter 4, I maintained that this argument is unsound, but even if it is sound, I argued that Fine, Forbes, and Chihara cannot consistently appeal to it. I then offered an argument against the adoption of free logic.

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PRIOR AND MENZEL ON NECESSITATION

The formal arguments for necessary existence essentially rely on the validity of the rule of necessitation. Denying the validity of this rule will be sufficient for blocking the formal derivation of necessary existence. The third formal argument for necessary existence also relies on the duality of the modal operators – in that the possibility operator ◊ is defined as ¬□¬. Thus, another way to resist the third argument, in addition to the denial of the validity of the rule of necessitation, is to deny that the modal operators are duals of each other. It is therefore important that I examine and respond to the case against the validity of the rule of necessitation and the duality of the modal operators.

Arthur Prior gives the most influential statement of the case, and it is embodied in his modal logic Q. The intuitions motivating this logic are the starting point for other modal logics also denying the validity of the rule of necessitation and, in some cases, the duality of the modal operators. These modal logics include Robert Adams's system, Peter Lopston's AI-Q, Harry Deutsch's Logic for Contingent Beings, and Christopher Menzel's modal logic A.[1] Space prevents me from considering each system in full, but I will briefly argue against the adoption of Deutsch's, Adams's, and Lopston's modal logic in the course of my discussion of Prior's argument against the validity of the rule of necessitation. I begin with his motivation for this argument.

PRIOR'S MOTIVATION FOR THE DENIAL OF NECESSITATION AND THE DUALITY OF THE MODAL OPERATORS

Prior's denial of both the validity of the rule of necessitation and the duality of the modal operators is motivated by a commitment to the claims that there are contingent individuals with logically proper names and that if an individual does not exist in a world, then there are no facts about this individual in that world. Concerning the claim that there are contingent individuals, Prior explicitly develops his modal logic Q in order to make room for this claim. 'I presented Q', Prior writes, 'as a 'logic for contingent beings'; meaning by that a logic in which one could intelligibly say that some beings are contingent and some necessary.'[2] Presumably, Prior means by this explanation that he intended to create a modal logic where necessary existence is not derivable as a theorem as it is in K+CQT. In order to block this derivation, he denies the validity of the rule of necessitation and the duality of the modal operators.

In addition to supposing that there are contingent individuals, like you and me, Prior supposes that at least some of these individuals have logically proper names. The criterion Prior gives in order to motivate his modal logic is that a logically proper name is a name that can always be replaced by a demonstrative.[3] Examples of such names are intended to be ordinary proper names and indexicals, the sort of singular terms of interest for the metaphysical argument of Chapter 5. It is highly dubious that all such singular terms are replaceable in principle by a demonstrative. One example Prior considers is Alexander the Great's horse's name 'Bucephalus'. Prior writes,

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[1] See Adams 1981, Lopston 1980a, Lopston 1980b, Deutsch 1990, Deutsch 1994, and Menzel 1991.
[2] Prior 1967, p. 155.
[3] Prior 1957, p. 33.

> since Alexander's horse has ceased to exist, the word 'Bucephalus' can no longer function as a logical proper name—that is, it cannot in principle be replaced by a demonstrative . . . On this view all statements which are ostensibly about Bucephalus are in fact not singular but quantified statements involving what we may describe, in the manner of Quine, as the property of 'Bucephalizing'.[4]

Prior confesses that he is 'a little uncomfortable about this view that we cannot properly name objects which have ceased to exist, like Bucephalus', but this view is inevitable if ordinary proper names are replaceable by a demonstrative and past individuals are no longer demonstrable. However, neither of these claims is obviously true.

Turning to the first claim, that ordinary proper names are replaceable by a demonstrative, consider some purported names of abstract objects. Assume that I name the proposition that David does not exist 'Dave'. Is 'Dave' a genuine name in this context? On Prior's view, it is not since 'Dave' cannot be replaced by a demonstrative in sentences such as 'Dave is true' because Dave cannot be demonstrated. But in the previous sentence, 'Dave' appears to be functioning as an ordinary proper name in the assertion that Dave cannot be demonstrated. Is this appearance misleading? If Prior is correct, then it must be misleading. But 'Dave' does everything we want an ordinary proper name to do: it picks out an individual, the proposition that David does not exist. Why not conclude that 'Dave' is a genuine name and Prior's criterion is mistaken?

An explanation for the initial appeal of Prior's criterion is that the metaphorical language of naming is taken too seriously. An example of such language arises in Prior's explanation for why 'Pegasus' cannot function as a logically proper name. He writes, '"Pegasus" cannot function as a "logical proper name", since this is a direct

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[4] Prior 1957, p. 33.

labelling of some actual object'.[5] If one takes the language of 'direct labelling' seriously, one might think that ordinary proper names are replaceable by demonstratives. But why should we understand 'direct labelling' as anything more than metaphorical such that just as babies are directly labelled when they are named so was the proposition that David does not exist directly labelled when I stipulated that the proposition is so named?

Turning now to the assumption that past individuals cannot be demonstrated, it is not at all clear that this assumption is true. For example, in an indirect sense of demonstration, I can point to a bust of Plato and say, 'This is one of the greatest ancient philosophers'.[6] In some indirect sense, I have demonstrated Plato when I demonstrate a representation of him. In this indirect sense, I have demonstrated a past individual. Another act of indirect demonstration is the act of demonstrating the number seven by pointing to '7' written on the blackboard. As a further example, consider an exploding star. All the standard conditions for demonstration and causal interaction can be in place so that an observer can perceive the star. In these standard conditions, the observer demonstrates the star, which is at the time of demonstration a past individual. Contrary to Prior's assumption, it appears that past individuals can in fact be demonstrated.

Though Prior's criterion for a name to be a logically proper name is inadequate as it stands, I will not labour this point. What is important about logically proper names, names such as ordinary proper names, demonstratives, and indexicals, is that their only semantic function is to refer, and these names are, by definition, referring names. Prior adopts the concept of a logically proper name from Russell, and though

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[5] Prior 1962a, p. 125

[6] Quine calls indirect demonstration 'deferred ostension'. See Quine 1969, p. 40.

Russell is not entirely clear about the necessary and sufficient conditions for a name to be a logically proper name, just as Prior is not, the central idea is that logically proper names refer by definition, and the function of these names is merely to identify the object being discussed and not to convey any other semantic information.

On this account, if '*a*' is a logically proper name, the proposition expressed by the sentence '*a* exists' is a logical truth. This is so because the existence of *a* is guaranteed by the symbol '*a*' being a logically proper name; apart from *a*, the symbol '*a*' has no semantic content or function. The proposition expressed by the sentence 'it is not the case that *a* exists' is a contradiction for similar reasons. Prior affirms this view in his discussion of Moore's claim that that it is meaningful to think of existence as a first level predicate. Prior writes,

> We take it for granted nowadays that we have Existence properly tied up and put in a bag, but I don't know. I don't see that it doesn't make sense to say 'This exists', though its sense is no doubt a kind of tautology; and I don't see that it doesn't make sense to say 'This doesn't exist', though its sense is no doubt a kind of contradiction.[7]

Given this characterisation of names, the propositions expressed by 'I exist' and 'Blair exists' are logical truths. By the rule of necessitation, Blair and I are then necessary existents. In order to deny this conclusion, we must deny either the claim that names such as ordinary proper names and indexicals are logically proper names or the validity of the rule of necessitation. Prior chooses the latter option.

An informal version of Prior's argument against the rule of necessitation is the following. Take the sentence 'Bush exists'. On Prior's account of logically proper names, 'Bush exists' expresses a logical truth. But Bush is a contingent individual. Consider a world in which Bush does not exist. In this world, the proposition

expressed by 'Bush exists' in the actual world is not statable or formulable, in Priorean terminology. Without Bush, no sentence mentioning Bush expresses a proposition. This claim is underwritten by a claim Prior makes concerning the definition of existence. 'Where *x* stands for a proper name', Prior writes,

> it seems to me that the form '*x* exists' must be logically equivalent to, and definable as, 'There are facts about *x*', $\Sigma\varphi\varphi x$ $[\exists\varphi(\varphi x)]$. If there are facts about *x*, I cannot see what further fact about *x* would consist in its existing. And when *x* no longer exists or does not yet exist, but there are nevertheless facts about *x* now, I do not know what the present-tense facts about *x* would be.[8]

On this definition of existence, if Bush does not exist in a world, then there are no facts about Bush in that world. That is, no sentence mentioning Bush expresses a proposition in this world. Thus, the proposition expressed by 'Bush exists' does not exist in all possible worlds.

If the proposition expressed by 'Bush exists' in the actual world does not exist in all possible worlds, then it cannot be true in all possible worlds. This is so because, on Prior's view, in order for a proposition to be true in a world, that proposition must exist in that world. As a result, a logical truth must exist in all possible worlds if it is a necessary truth. Since the proposition expressed by 'Bush exists' in the actual world is not a necessary existent, though it is a logical truth, it is not a necessary truth. Only propositions that are necessarily formulable are necessary truths. Prior writes:

> To be logically necessary a statement must not only be incapable of being false, but necessarily formulable. But a statement exemplifies a logical law so long as its truth is secured by its logical form alone, even if its formulability depends on what is usually a contingent matter, the existence of such objects as are directly referred to in it. This

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[7] Prior 1976, 61 (his italics). Prior makes essentially the same argument in Prior 1967, pp. 149-151.
[8] Prior 1957, p. 31.

> distinction is unavoidable, it seems to me, in a modal logic for contingent beings, which is what the system Q would be.[9]

So for Prior, a proposition is necessarily true just in case it is both statable and true in all possible worlds. This then is Prior's purported counter-example to the rule of necessitation: sentences containing logically proper names of contingent individuals that express propositions that are logical truths but are not necessary truths because these propositions do not exist in all possible worlds.

This purported counter-example also gives rise to Prior's proposed counter-example to the duality of the modal operators. Sentences containing logically proper names of contingent individuals express propositions that are not necessary truths but also are not false in any possible world. If the modal operators were duals, then this could not happen because if a proposition is not necessary ($\neg\Box\varphi$) this proposition is also possibly false ($\Diamond\neg\varphi$). Thus, since there are propositions that are both not necessarily true and also not possibly false, the modal operators cannot be duals on Prior's account.

The non-duality of the modal operators is particularly relevant to the representation of the contingency of individuals. Given that Bush is contingent, Prior affirms that it is possible that Bush might not have existed. This is most naturally written as '$\Diamond\neg E!a$', where 'a' refers to Bush. However, this formula is not true in Q because in the worlds in which Bush does exist, the formula $\neg E!a$ is false and in the worlds in which Bush does not exist, it is not statable. So the formula $\Diamond\neg E!a$ does not come out true on Prior's account. Prior must represent Bush's contingency by the formula $\neg\Box E!a$, a formula that is true in Q because the formula $E!a$ is not statable in some possible worlds (namely, those worlds in which Bush does not exist). But in

[9] Prior 1957, p. 50.

standard modal logic, the formula $\Diamond\neg E!a$ is equivalent to the formula $\neg\Box E!a$ because the possibility operator and the necessity operator are duals. Prior must then deny that the formula $\neg\Box E!a$ entails the formula $\Diamond\neg E!a$ because the former is true on Prior's account and the latter false. Thus, Prior must deny the duality of the possibility and necessity operators. In general, the following theorems, which are valid in any standard modal logic, are invalid in Q (while their converses are valid in Q):

$$\neg\Diamond\neg\varphi \supset \Box\varphi$$

$$\neg\Box\neg\varphi \supset \Diamond\varphi$$

Informally, this is Prior's argument against the validity of the rule of necessitation and the duality of the modal operators. In the following section, I present a formalised version of the argument in order to show that if one accepts the soundness of Prior's argument, one must also deny all three of the principles underlying the premises of the metaphysical argument of Chapter 5.

PRIOR'S ARGUMENT AGAINST THE VALIDITY OF THE RULE OF NECESSITATION

I will concentrate on Prior's argument against the validity of the rule of necessitation because the considerations that challenge the validity of this rule are precisely those that support the denial of the duality of the modal operators. Thus, if Prior's argument against the validity of the rule of necessitation is not sound, then neither is Prior's argument against the duality of the modal operators. Prior's argument against the validity of the rule of necessitation begins with the assumption that I am not a necessary existent. Prior explicitly affirms that there are contingent existents, and, presumably, I am one of them.

(1) $\neg\Box E!x$ (Assumption)

We now assume that if I am not a necessary existent, then propositions about me are not necessary existents, either – a claim which formalises Prior's views on singular propositions and their statability. On Prior's view, only those propositions containing necessary existents are necessary existents themselves.

(2) $\Box E![\varphi(x)] \supset \Box E!x$ (Assumption)

(3) $\neg\Box E!x \supset \neg\Box E![\varphi(x)]$ (2, Contraposition)

Next we argue that if I am not a necessary existent, then no proposition about me is necessarily true. This argument begins with the premise that if a proposition about me is necessarily true, then I am a necessary existent – a claim that is derived from Prior's view that all necessary truths are formulable in all possible worlds. If a proposition is formulable in all possible worlds, then, on Prior's understanding of 'formulable', it exists in all possible worlds. On the assumption that I am not a necessary existent, no proposition about me is a necessary existent, and so, no proposition about me is necessarily true.

(4) $\Box T[\varphi(x)] \supset \Box E![\varphi(x)]$ (Assumption)

(5) $\neg\Box E![\varphi(x)] \supset \neg\Box T[\varphi(x)]$ (4, Contraposition)

(6) $\neg\Box E!x \supset \neg\Box T[\varphi(x)]$ (3, 5, Transitivity of the strict conditional)

Now in order to secure the invalidity of the rule of necessitation, I assume that a formula is necessary only if the proposition expressed by the formula is necessarily

true. From this assumption, and contraposition, we can conclude that if I am not a necessary existent, then no formula about me is necessary.

(7)	$\Box\varphi(x) \supset \Box T[\varphi(x)]$	(Assumption)
(8)	$\neg\Box T[\varphi(x)] \supset \neg\Box\varphi(x)$	(7, Contraposition)
(9)	$\neg\Box E!x \supset \neg\Box\varphi(x)$	(6, 8, Transitivity of the strict conditional)

We can assume that $\varphi(x)$ is any logically true formula containing the free variable 'x'. This assumption enables us to conclude that if I am not a necessary existent, then no logical truth about me is necessary. For example, it is not necessary that either I am wearing a white shirt or I am not wearing a white shirt. Given the assumption that I am not a necessary existent, the assumption from which this argument began, no logical truth about me is necessary.

(10)	$\neg\Box\varphi(x)$	(1, 9, MP)

Thus, there are logical truths that are not necessary. Because the rule of necessitation implies that all logical truths are necessary, this rule is invalid if I am not a necessary existent. Furthermore, there is nothing special about me in this regard. In fact, the conclusion can be generalised: the rule of necessitation is invalid for a formula about any individual that is not a necessary existent.

(11)	$\forall x(\neg\Box E!x \supset \neg\Box\varphi(x))$	(9, Universal gen.)

The argument from (1) –(11), is, I think, an accurate formalisation of Prior's argument against the validity of the rule of necessitation.

More worrying still for my thesis is that one can also argue from the premises of this argument that all three of the principles underlying the premises of the metaphysical argument of Chapter 5 are false. These principles are the following:

(1*) $\Box(\varphi(x) \supset T[\varphi(x)])$

(2*) $\Box(T[\varphi(x)] \supset E!x[\varphi(x)])$

(3*) $\Box(E!x[\varphi(x)] \supset E!x)$.

If the un-necessitated versions of (1*) – (3*) are substituted for $\varphi(x)$ in (9), we obtain the following claims.

(12) $\neg\Box E!x \supset \neg\Box(\varphi(x) \supset T[(\varphi(x)])$

(13) $\neg\Box E!x \supset \neg\Box(T[(\varphi(x)] \supset E!x[(\varphi(x)])$

(14) $\neg\Box E!x \supset \neg\Box(E!x[(\varphi(x)] \supset E!x)$

On the assumption that I am not a necessary existent, we can conclude that all three premises of the metaphysical argument for necessary existence are false.

(15) $\neg\Box(\varphi(x) \supset T[\varphi(x)])$ (1, 12, MP)

(16) $\neg\Box(T[\varphi(x)] \supset E!x[\varphi(x)])$ (1, 13, MP)

(17) $\neg\Box(E!x[\varphi(x)] \supset E!x)$ (1, 14, MP)

To make Prior's view explicit, I note that Prior is committed to the following set of conjunctions.

(18) $(\Box\varphi(x) \supset \Box T[\varphi(x)]) \wedge \neg\Box(\varphi(x) \supset T[\varphi(x)]))$ (7, 15, $\wedge$ introduction)

(19) $(\Box T[\varphi(x)] \supset \Box E!x[\varphi(x)]) \wedge \neg\Box(T[\varphi(x)] \supset E!x[\varphi(x)])$
(4, 16, $\wedge$ introduction)

(20) $(\Box E!x) \wedge \neg\Box(E!x)$ (2, 17, $\wedge$ introduction)

I turn now to assessing the soundness of Prior's argument against the validity of the rule of necessitation.

ON THE SOUNDNESS OF PRIOR'S ARGUMENT

If Prior's argument is sound, then all three of the principles underlying the metaphysical argument for necessary existence are false.[10] This is a surprising consequence. If one wished to deny necessary existence, then it is clear that one must also deny one of the premises of the metaphysical argument for necessary existence. But it seems a rather strong claim that all three of the premises are false given the denial of necessary existence. If just one of the premises of the metaphysical argument is true, then Prior's argument against the validity of the rule of necessitation must be unsound. I take it that most would accept at least one of the premises of the metaphysical argument, if not all three. On this assumption, Prior has not put forward a persuasive case against necessitation for most of his opponents.

Furthermore, his argument seems to make trouble for his own view of the definition of the existence predicate. Recall that he defines '*x* exists' in the following way: 'Where *x* stands for a proper name it seems to me that the form "*x* exists" must

[10] Since Lopston assumes Prior's arguments against both the validity of the rule of necessitation and the duality of the modal operators to motivate his modal logic AI-Q, my arguments against the soundness of Prior's arguments will serve as arguments against Lopston's AI-Q. Furthermore, since the conclusion of Prior's argument against the validity of the rule of necessitation, that there are no necessary truths about contingent existents, motivates both Deutsch's Logic for Contingent Beings and Adams's quantified modal logic, my arguments against Prior's argument serve to remove the reasoning for behind adopting this conclusion. As a result, both Deutsch's logic and Adams's logic lack sufficient motivation.

be logically equivalent to, and definable as, "There are facts about x", $\Sigma\varphi\varphi x$.'[11] If this definition – $E!x =_{df.} \exists\varphi(\varphi x)$ – holds, then we would expect there to be a corresponding necessary equivalence between the *definiens* and the *definiendum* – namely, $\Box(E!x \equiv \exists\varphi(\varphi x))$. The reason we would expect this necessary equivalence to hold is that synonymous expressions are necessarily equivalent. But Prior must deny this necessary equivalence if 'x' denotes a contingent existent, given his argument against the validity of the rule of necessitation. So Prior must deny one of the following claims: that his argument against the validity of the rule of necessitation is sound, that his definition of the existence predicate is correct, or that synonymous expressions are necessarily equivalent. I take it that it is highly implausible to deny the claim that synonymous expressions are necessarily equivalent. Therefore, there is an internal tension in Prior's view, and this internal tension undermines his case against the validity of the rule of necessitation.

A further point on Prior's case against necessitation is that if his case is taken to be an argument against necessary existence, then his case is clearly question begging. This is so because one of the premises of Prior's argument is that a particular individual is a contingent existent, premise (1) of his argument. This assumption is just the denial of necessary existence. Because Prior's argument is question begging, if it is an argument against necessary existence, it would be unpersuasive to the defender of this claim. Now Prior never intended his argument to be an argument against necessary existence; he assumed its falsity from the start. I merely note that Prior's argument against the validity of the rule of necessitation cannot be a component of a case against necessary existence.

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[11] Prior 1957, p. 31.

I have argued that Prior's argument against the validity of the rule of necessitation is unsound. But I have yet to state which premise of his argument is false. I aim to do so now. The premises of the argument are the following:

(21) $\neg\Box E!x$

(22) $\Box E![\varphi(x)] \supset \Box E!x$

(23) $\Box T[\varphi(x)] \supset \Box E![\varphi(x)]$

(24) $\Box\varphi(x) \supset \Box T[\varphi(x)]$

Premises (22) – (24) are consequences of (1*) – (3*) together with the (K) axiom and modus ponens. Because this axiom is true and this rule of inference is valid, (22) – (24) are true if (1*) – (3*) are true. These principles, (1*) – (3*), are true, or so I argued in Chapter 5. Therefore, (22) – (24) are also true. This leaves premise (21), the claim that I am not a necessary existent. It is this premise that must be false.

This response to Prior's argument against the validity of the rule of necessitation points to the proper response to his argument against the duality of the modal operators. If I am a necessary existent, then logical truths about me are necessary, by Prior's lights, because they are true in all possible worlds and exist in all possible worlds. Logical truths about contingent individuals are contingent existents on Prior's account. That there are contingently existing logical truths, Prior argues, points to the need for a distinction between the always true and the never false. In other words, if there are contingently existing logical truths, the modal operators are not duals. But if there are no contingent existents, there are no contingently existing propositions. If there are no contingently existing propositions, there is no reason to suppose that the modal operators are not duals. In other words, the distinction

between the always true and never false is a distinction without a difference. It is reasonable to conclude that Prior's arguments against the validity of the rule of necessitation and the duality of the modal operators do not challenge the truth of necessary existence.

MENZEL'S MODAL LOGIC A

Prior's views on modal metaphysics have recently been developed by Christopher Menzel and incorporated into a quantified modal logic that he terms 'A'.[12] If Menzel's modal logic is the true modal logic, as he claims, necessary existence is false; his proposal therefore requires careful examination. My contention is that, not withstanding its formal interest, Menzel's A is a metaphysically inadequate logic.

Menzel incorporates two fundamental features of Prior's modal logic Q – the use of classical quantification theory and the logical connection between property exemplification and existence. But, Menzel argues, these features, together with the denial of necessary existence, do not necessarily lead to Prior's Q. Menzel maintains that a further conception of what it is for a proposition to be possible is necessary in order to validate Q as the true modal logic. In contrast to this conception, he develops an alternative conception of what it is for a proposition to be possible, a conception implicit in Prior's own writings. This conception, together with the logical connection between property exemplification and existence and a classical quantificational basis, leads to a more standard quantified modal logic than Q, a logic close to quantified S5. Menzel calls this quantified modal logic 'A', and he maintains that it is the true modal logic.

EXEMPLIFICATION, EXISTENCE, AND PROPOSITIONAL POSSIBILITY

Menzel builds his modal logic on the acceptance of the validity of one formula central to Prior's work and the denial of the validity of another formula central to Prior's work. The formula he regards as valid is the following, which he terms 'Priorean serious actualism':

(PSA) $\varphi \supset E!t$, where t occurs free in φ.

This schema, Menzel holds, 'is a key Priorean component of the true modal logic'.[13] It is clearly related to the Existence Principle and unrestricted existential generalisation, but (PSA) entails the principle underlying the second premise of the metaphysical argument of Chapter 5 only given the rule of necessitation. But due to Menzel's restriction on this rule, (PSA) does not entail this principle. I discuss this restriction in the following section.

While Menzel accepts the validity of (PSA), he denies a formula that he interprets as another aspect of Priorean serious actualism – namely, the formalisation of the claim that 'no proposition could have been a fact without its subject existing'.[14] The following schema provides the precise formalisation of this claim:

(PSA*) $\neg\Diamond(\varphi \wedge \neg E!t)$, where t occurs free in φ.

Consider the following instance of (PSA*). If the formula $\neg E!t$ where 't' refers to Prior, is substituted for φ, then $\neg\Diamond\neg E!t$, is a theorem. In accepting both the

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[12] Menzel 1991.
[13] Menzel 1991, p. 337.

contingency of his existence and (PSA*), Prior is therefore committed to denying the interdefinability of the modal operators on pain of contradiction. Since the non-interdefinability of the modal operators is a fundamental feature of Prior's modal logic Q, Prior's commitment to (PSA*) is an essential aspect of Prior's theory of modality.

This schema is clearly related to the principle underlying the third premise of the metaphysical argument: $\Box(\varphi(x) \supset E!x)$. If, contrary to Prior, we accept the duality of the modal operators, it follows that (PSA*) is equivalent to this principle. But Menzel does accept the duality of the modal operators. Thus, Menzel builds his modal logic on the denial of the principle underlying the third premise of the metaphysical argument of Chapter 5. His case against (PSA*) begins with the claim that there is a certain ambiguity concerning what it means for a proposition to be possibly true. This ambiguity arises from two intuitive conceptions of the world: 'the world as the *totality of facts*, and the world as a maximal *configuration of objects*.'[15] Though Menzel finds both of these conceptions of the world in Prior's writings, only the former conception supports (PSA*).

Let '[φ]' abbreviate 'the proposition expressed by φ'. If the world is the totality of facts, then a proposition's being possible means that it could have been a member of the totality of facts. If [φ] is a member of the totality of facts, then there is the fact that [φ]. On this conception, (PSA*) comes to the claim that a singular fact cannot exist without its subject existing, 'which seems most reasonable'.[16] From this it immediately follows that the proposition expressed by the formula $\neg E!a$ could not have been a member of the totality of facts, and so, $[\neg E!a]$ could not possibly be true. This

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[14] Menzel 1991, p. 339.
[15] Menzel 1991, p. 350.
[16] Menzel 1991, p. 351.

conception of the world, as the totality of facts, then leads naturally to Prior's Q with its denial of the interdefinability of □ and ◊.

Menzel claims that if one adopts the alternative conception of the world, which leads to a different conception of propositional possibility, one can reasonably deny (PSA*) and from this denial construct an alternative modal logic to Q while still retaining much of the motivation behind Q. Menzel begins his explication of this alternative conception with the concept of a *possible state of affairs*. Careful to define this concept in accordance with Prior's commitment to (PSA), Menzel defines a *state of affairs* as 'a structured configuration of objects, i.e., a collection of objects existing together exemplifying certain properties and standing in certain relations.'[17] Formally, a state of affairs is a triple <**O**, **R**, **ext**> where **O** is a set of individual objects, **R** is a set of *n*-place relations such that $n \geq 1$, and **ext** is a function specifying the actual exemplification of the properties and relations in **R** within **O**. The world is a maximal state of affairs, $A' = \langle \mathbf{O}', \mathbf{R}', \mathbf{ext}' \rangle$ in the sense that it is not contained by any larger state of affairs. Formally, there is no state of affairs $A'' = \langle \mathbf{O}'', \mathbf{R}'', \mathbf{ext}'' \rangle$ such that $A' \neq A''$ and $\mathbf{O}' \subseteq \mathbf{O}''$, $\mathbf{R}' \subseteq \mathbf{R}''$, and $\mathbf{ext}' \subseteq \mathbf{ext}''$.

A definition of a *possible state of affairs* is then offered as follows: '*A* is a possible state of affairs just in case it is possible that it be a state of affairs, i.e., just in case the members of **R** could have precisely the extensions in **O** assigned by **ext**.' Menzel emphasises that all possible states of affairs are possible in the sense that if they were actual, then they would exist, and because they are composed of existing objects, properties, and relations, all possible states of affairs do, in fact, exist.

A *possibly maximal state of affairs*, or a *possible world*, is defined thus: '*A* = <**O**, **R**, **ext**> is *possibly maximal*, or a *possible world*, just in case it is possible that *A*

be a maximal state of affairs, i.e., that it be an actual state of affairs that is not subsumed by any larger state of affairs.'[18] The existence of these possible states of affairs is not problematic, or no more problematic than the existence of the world itself, from an actualist standpoint because, Menzel writes, 'it seems clear that only the members of some proper subset of the individuals there are could have existed, or that the same objects could have existed with rather different properties and relations'.[19]

Finally, Menzel defines propositional existence in a state of affairs: a proposition *p* 'can be said to *exist in*, or be *statable in*, a state of affairs $A = \langle \mathbf{O}, \mathbf{R}, \mathbf{ext} \rangle$ just in case all its subject members are members of **O** and all its component relations are members of **R**.' Given this definition of propositional existence, Menzel claims that propositions are not 'first-class ontological citizens . . . considered on the same footing with objects, properties and relations.'[20] It is unclear exactly what is meant by a 'first-class ontological citizen' and how his definition of propositional existence in a state of affairs is meant to entail that propositions are not first-class ontological citizens.

This ontological asymmetry between propositions and objects, properties, and relations allows propositions, according to Menzel, to be able to '*characterise* possible states of affairs in which they don't exist.'[21] Though a proposition *p*, such as $[\neg E!a]$, may not exist in a state of affairs *S*, such as a state of affairs where the subject of the proposition does not exist, nevertheless, *p* states a truth about *S* and, in this way, characterises *S*. Menzel notes that the concept of characterisation is utilised by other writers, namely Harry Deutsch, Robert Adams, and Kit Fine. He further holds that his

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[17] Menzel 1991, p. 351.
[18] Menzel 1991, p. 352.
[19] Menzel 1991, p. 352.
[20] Menzel 1991, p. 352.
[21] Menzel 1991, p. 352.

concept of characterisation is relevantly similar to the distinction between a proposition's being true in a world and a proposition's being true of a world, which was discussed in Chapter 5.

Formally, Menzel explicates the concept of characterisation for non-modal propositions with the following clauses.[22] Let $S = \langle \mathbf{O}, \mathbf{R}, \mathbf{ext} \rangle$ be a state of affairs:

(C1) An atomic proposition $[Ra_1 \ldots a_n]$ characterises S iff $\langle a_1, \ldots, a_n \rangle \in \mathbf{ext}(R)$;

(C2) $[\neg\psi]$ characterises S iff if it is not the case that $[\psi]$ does;

(C3) $[\psi \wedge \theta]$ characterises S iff both $[\psi]$ and $[\theta]$ do;

(C4) $[\exists x\psi]$ characterises S iff $[\psi]$ does for some $a \in \mathbf{O}$ when 'x' means a.

Truth can now be defined in terms of characterisation: a proposition 'is true in S just in case it both characterises S and exists in S.'[23] Menzel observes that in order for an atomic proposition, such as $[Rab]$, to characterise a state of affairs S, it must also be true in S. This requires that a, b, and R all exist in S so that $\langle a, b \rangle$ may be in the extension of R in S. Importantly, however, negated propositions need not be true in a state of affairs in order to characterise it. For example, according to (C2), $[\neg Rab]$ characterises a state of affairs S just in case $[Rab]$ does not do so. There are two ways for $[Rab]$ to fail to characterise S: (i) a, b, and R all exist in S but $\langle a, b \rangle$ is not in the extension of R in S; or (ii) a, b, or R does not exist in S. In the first case, $[\neg Rab]$ exists in S and characterises S internally, in Adams and Fine's terms. In the second case, $[\neg Rab]$ does not exist in S and characterises S externally. 'In either case, though,'

[22] These clauses are quotes from Menzel 1991, p. 353.
[23] Menzel 1991, p. 353.

writes Menzel, 'there is a clear intuitive sense in which [$\neg Rab$] is true of S, a clear sense in which the state of affairs is as the proposition says.'[24]

The concept of characterisation yields a sense in which negative existentials are possible or possibly true. Menzel defines propositional possibility in the following way: 'a proposition is *possible*, or *possibly true*, if there is some possibly maximal state of affairs, some possible world, that it characterises.' Let $S = \langle \mathbf{O}, \mathbf{R}, \mathbf{ext} \rangle$ be a state of affairs such that Prior is not an element of **O**. So Prior is not in the extension of existence. Formally, Prior $\notin$ **ext(existence)**. Thus [$E!a$], where a is Prior, fails to characterise S. But then [$\neg E!a$] does characterise S since S is a possibly maximal state of affairs and given the above definition of propositional possibility, [$\neg E!a$] is possible, or possibly true.

Menzel argues that this "maximal configuration of objects" concept of propositional possibility is more basic than the "totality of facts" concept of propositional possibility. This is so, he claims, because the latter conception can be explicated in terms of the former conception but not vice versa. The "totality of facts" conception requires both characterisation plus statability: a proposition on this conception is possible in a state of affairs S just in case it is true in S, that is, it both characterises S and exists in S. However, the "maximal configuration of objects" conception requires only characterisation: a proposition is possible in a state of affairs S just in case it characterises it, regardless of whether it exists in S or not. All of which leads Menzel to conclude that the "maximal configuration of objects" concept is more basic than the "totality of facts" concept of propositional possibility.

In contrast to the "totality of facts" conception of propositional possibility, the "maximal configuration of objects" conception does not support (PSA*). On the latter

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[24] Menzel 1991, p. 353.

reading of the possibility operator, (PSA*) says that no proposition can characterise a state of affairs in which any subject of the proposition fails to exist. If the argument above concerning the negative existentials and their being possibly true is correct, then (PSA*) must be false on the "maximal configuration of objects" conception of propositional possibility. And if (PSA*) is indeed false, then an alternative modal logic to Q can be developed which incorporates (PSA) and avoids the necessary existence while doing away with much of Q's complications, particularly, the denial of the inter-definability of the modal operators.

MENZEL'S 'NATURAL ALTERNATIVE'[25]

With this "maximal configuration of objects" conception of possibility, Menzel constructs an alternative modal logic to Prior's Q. Since this alternative modal logic is meant to apply to modal propositions in general, both merely possible and actually existing states of affairs must be considered. Merely possible states of affairs cannot be constructed out of already existing components, and for the actualist, do not exist. However, when merely possible states of affairs rear their ugly heads, Menzel believes that necessarily existing surrogates – such as sets – can play the same role as the merely possible states of affairs.

On the current conception of possibility, the modal operators are inter-definable, and it seems to Menzel that this inter-definability 'is intuitively correct'.[26]

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[25] Menzel 1991, p. 354. Menzel terms his modal logic the 'natural alternative' to Prior's Q.
[26] Menzel 1991, p. 355.

Characterisation is now extended to modal propositions with the following two clauses:[27]

(C5) [◊φ] characterises *S* iff [φ] characterises some possible world;

(C6) [□φ] characterises *S* iff [φ] characterises all possible worlds.

A proposition, on this conception, is true just in case it characterises the actual world. And given this definition of truth and the above two clauses, it follows that the modal operators are duals.

In order to prevent the derivation of necessary existence, Menzel restricts the rule of necessitation. This restriction is motivated by further considerations of Priorean serious actualism and the concept of characterisation. Menzel accepts that all instances of the following axiom are logically true.

(ID) $t = t$, for any term t.

However, these truths are not necessary truths, in Menzel's view, because 'no contingent being *a* stands in the identity (or any other) relation with itself in possible states of affairs in which it doesn't exist'.[28] Thus [$a = a$] does not characterise any state of affairs in which *a* does not exist. So Menzel's restriction on the rule of necessitation is shaped in accordance with the foregoing considerations:

(N*) If φ is a theorem, then □φ is also a theorem, so long as φ is provable without any instance of (ID).[29]

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[27] These clauses are quoted from Menzel 1991, p. 355.
[28] Menzel 1991, p. 359.
[29] Menzel 1991, p. 359.

This restriction is clearly sufficient to block the derivation of necessary existence because the use of (ID) is essential to all of the formal arguments. Menzel goes on to further fill out his logic, but it is not necessary here to pursue the matter further. What is of interest is how he blocks the proof of necessary existence and his motivation for doing so.

A META-LANGUAGE DILEMMA: QUANTIFICATION AND CHARACTERISATION

Menzel sets up the formal apparatus of his logic so that quantification is restricted to the domains of worlds. He defines a general interpretation of a language L as a 5-tuple $\langle W, @, D, d, V\rangle$ 'where W and D are disjoint sets, $@ \in W$, d: $W \rightarrow P(D)$, $D = \cup$ range(d), and V is a valuation function'.[30] The clause for quantification is as follows. Let V^* be a total extension of V from L into the set of truth values {T, ⊥}.

(Q) $V(\exists x\psi, w) = \mathrm{T}$ iff for some $a \in d(w)$, $V^*_a(\psi, \omega) = \mathrm{T}$, where V^*_a is $(V - \{\langle x, V(x)\rangle\}) \cup \{\langle x, a\rangle\}$.

This quantificational clause is explicitly restricted: quantification happens over domains in worlds. But this is problematic in that the intended interpretation of necessary existence is an interpretation with unrestricted quantification. Consequently, Menzel is not addressing the intended interpretation of these formulas in his clause for quantification.

Menzel may respond to the quantification objection by saying that the model theory is only a useful mathematical technique, but that, philosophically speaking, the real bottom line is in a modal meta-language. So the restricted quantification clauses

[30] Menzel 1991, p. 361.

do not reflect the philosophy behind A, and the unrestricted quantification of necessary existence can be dealt with in the modal meta-language where we do not have the restricted quantification. There are two problems with this response: first, it renders the semantics Menzel gives irrelevant for explaining the failure of necessary existence; second, it undercuts the concept of characterisation.

The concept of characterisation requires a non-modal meta-language: in order to explain the concept of characterisation, Menzel treats necessity and possibility as quantification over worlds, thereby explicitly relying on a non-modal meta-language. Consequently, characterisation and quantification are pulling in opposite directions: quantification requires a modal meta-language in order to address the intended interpretation of necessary existence, and characterisation requires a non-modal meta-language if this concept is to be explained at all. It is not at all clear that this dilemma can be resolved. In the absence of such a resolution, we have good reason to believe that Menzel's A is not the true modal logic.

SUMMARY

This chapter examined Prior's case against the validity of the rule of necessitation and the duality of the modal operators. I argued that the presumed soundness of his argument would result in the falsity of all three of the principles underlying the metaphysical argument for necessary existence. This consequence creates trouble for Prior's view of existence, and this internal tension points to the unsoundness of Prior's argument. I argued that the premise to be denied is the premise that there is a contingent existent. And since Prior's case against the duality of the modal operators

is parasitic on his case against the validity of the rule of necessitation, his argument against the duality of the modal operators is also unsound.

I then considered an important contemporary development of the intuitions motivating Prior's case, namely, Menzel's modal logic A. Important though it may be, Menzel's proposed logic cannot be the true modal logic. This is so because there is a deep internal tension in the logic. This tension is evident in Menzel's treatment of quantification and his treatment of characterisation. Given both of these treatments, his logic requires both a modal meta-language and a non-modal meta-langauage. Since such a conjunction is impossible, Menzel's modal logic cannot be the true modal logic. As such, it does not present a challenge to necessary existence.

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PLANTINGA ON MODALITY *DE RE* AND THE SEMANTICS OF QUANTIFIED MODAL LOGIC

Plantinga's approach to modality *de re* challenges the acceptance of necessary existence. The challenge comes in two halves: a challenge to the metaphysical argument of Chapter 5 and a challenge to the formal arguments of Chapter 6. It is easiest to consider the challenge to the formal arguments first. On Plantinga's account of modality *de re*, one cannot derive necessary existence by means of the formal principles introduced in Chapter 6 or by any other formal principles. In fact, necessary existence cannot be formally stated if Plantinga's approach to modality *de re* is assumed. On his approach, one can only derive the claim that every individual essentially exists, which may be termed 'essential existence'. An individual essentially exists just in case that individual exists in every possible world in which it exists. Essential existence is an entirely trivial claim that does not support the acceptance of necessary existence. Plantinga's account of modality *de re* does not allow for the statement of necessary existence nor does it allow for the statement of any formal principles that entail this claims. If necessary existence cannot be formally stated or formally argued for, presumably, we should not accept it. This is the particular challenge to the formal arguments for necessary existence.

The challenge to the metaphysical argument for necessary existence comes from the same source as the challenge to the formal arguments for necessary existence. Plantinga argues that the third premise of the metaphysical argument should be denied on grounds provided by his account of modality *de re*. The denial of this premise gives rise to his favoured interpretation of quantified modal logic. The difficulty with this interpretation is that not only does it not allow for a formal representation of necessary existence, but also it does not allow for a formal representation of the claim that gives rise to the interpretation itself. Because of such formal limitations, I argue that Plantinga's account of modality *de re* together with his favoured interpretation of quantified modal logic should be denied. Consequently, there is no challenge to necessary existence from these quarters.

PLANTINGA'S APPROACH TO MODALITY *DE RE*

Modality *de re* characterises a certain type of modal assertion that may be distinguished from modality *de dicto*. As Plantinga explains the distinction, a modal assertion is *de re* just in case it predicates a modal property of an individual that need not be a proposition; a modal assertion is *de dicto* just in case it predicates a modal property of a proposition.[1] For example, the formula $\Box\forall xE!x$ is a *de dicto* modal assertion because it expresses the claim that the proposition that everything exists is necessary, while $\forall x\Box E!x$ is a *de re* modal assertion because it expresses the claim that all individuals are such that they necessarily exist.

[1] Plantinga 1974, p. 9.

Now, how are we to interpret *de dicto* and *de re* modal assertions? Plantinga gives the standard interpretation of *de dicto* modality:

□φ is true just in case φ is true in all possible worlds;

◊φ is true just in case φ is true in some possible world.[2]

Call these truth conditions for modality *de dicto* 'the standard modality *de dicto* truth conditions'. So, for example, the formula $\Box\forall xE!x$ is true just in case the formula $\forall xE!x$ is true in all possible worlds. Given these truth conditions for modality *de dicto*, one would expect a parallel account of modality *de re*:

□*Fx* is true just in case *x* has *F* in all possible worlds;

◊*Fx* is true just in case *x* has *F* in at least one possible world.[3]

Call these truth conditions for modality *de re* 'the standard modality *de re* truth conditions'.

Plantinga argues that the standard modality conditions of *de re* modality cannot be correct. The argument runs as follows.[4]

> Assume that some formulas of *de re* necessity are true of contingent existents. Also, assume that if an individual is in the extension of a unary predicate at a world, then the individual exists in that world.[5] Making use of these assumptions, say that the formula □*Fa* is true, where '*F*' is a unary predicate and '*a*' denotes a contingent existent. Given the standard truth conditions of *de re* necessity, *a* has *F* in all possible worlds. Now

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[2] Plantinga writes, 'A proposition, of course, is necessarily true if true in every possible world' (Plantinga 1974 p. 55). Plantinga goes on to explain that 'φ is true in all possible worlds' is to be interpreted as the claim that for all possible worlds *w*, had *w* been actual, then φ would have been true.

[3] Plantinga appears to be dealing primarily with atomic statements such that '*Fx*' is an atomic predication of *x*.

[4] I have summarised Plantinga's argument as it appears in Plantinga 1974, p. 56.

[5] Plantinga calls this assumption 'serious actualism'.

> given serious actualism, *a* exists in all possible worlds. If *a* exists in all possible worlds, then *a* is a necessary existent. But *a* is a contingent existent, by hypothesis. Therefore, one of the following claims must be denied: (i) that some formulas having the form $\Box Fx$ are true of contingent existents, (ii) serious actualism, or (iii) that the standard truth conditions of modality *de re* are correct.

Plantinga chooses to deny the correctness of the standard truth conditions of modality *de re*. In order to substantiate this denial, Plantinga develops an essentialist interpretation of *de re* modal claims. The following truth conditions correspond to Plantinga's interpretation.

$\Box_E Fx$ is true just in case x has F in all possible worlds in which x exists;

$\Diamond_E Fx$ is true just in case x has F in some possible world in which x exists.[6]

I have introduced a subscript on the modal operators in these truth conditions in order to distinguish them from the standard modal operators. Plantinga's argument amounts to the claim that all *de re* modal claims should be interpreted as claims containing the essentialist operators $\Box_E$ and $\Diamond_E$ rather than the standard modal operators $\Box$ and $\Diamond$. Clearly, an equivalence can be given between claims of the form $\Box_E Fx$ and those of the form $\Box Fx$.

$$\Box_E Fx \equiv \Box(E!x \supset Fx)$$

$$\Diamond_E Fx \equiv \Diamond(E!x \wedge Fx)$$

Plantinga's interpretation of modality *de re* has important consequences, which I outline in the next section. Some of these consequences tell decisively against the adoption of this interpretation.

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[6] Plantinga argues we must accept these truth conditions for de re modal assertions in Plantinga 1974, p. 56.

CONSEQUENCES OF PLANTINGA'S APPROACH TO MODALITY *DE RE*

The first consequence of this approach is that it does not allow for the formal representation of necessary existence. Up to this point, I have represented necessary existence as the formula $\forall x \Box E!x$. But on Plantinga's account, the *de re* necessity operator should be interpreted as the *de re* essentiality operator $\Box_E$. So the claim is then represented as $\forall x \Box_E E!x$. On the equivalence schema just given, the formula $\forall x \Box_E E!x$ is equivalent to the formula $\forall x \Box(E!x \supset E!x)$, which may be termed 'essential existence'. That everything essentially exists is trivially true. Though Plantinga claims that 'everything has existence essentially but only some things have necessary existence', he can formally represent only essential existence.[7] Given the formal limitations of Plantinga's approach to modality *de re*, it cannot be an adequate approach for evaluating the truth-value of necessary existence.

A second consequence to note is that Plantinga's approach has a significant effect on the validity of certain modal arguments. One notable effect is that for closed formulas φ, $\Box(Fx \wedge \varphi)$ does not entail $\Box\varphi$ because the formula $\Box(Fx \wedge \varphi)$ should be interpreted as the formula $\Box_E(Fx \wedge \varphi)$, which is equivalent to the formula $\Box(E!x \supset (Fx \wedge \varphi))$. Clearly, this formula does not entail the conclusion $\Box\varphi$ on Plantinga's view. But this argument form, from $\Box(Fx \wedge \varphi)$ infer $\Box\varphi$, is intuitively valid. An example of such an argument is the following: from the claim that necessarily (Socrates is human and everything is green) infer that necessarily everything is green. If the premise is true, how could the

[7] Plantinga 1976, p. 106, though, confusingly, Plantinga claims that 'essentially' and necessarily' are synonymous. See also Plantinga 1974, p. 14 n. 1.

conclusion be false? Thus, Plantinga's approach does not validate some arguments that appear to be intuitively valid. While this consequence is a telling consequence against Plantinga's account, there are further consequences that are particularly relevant to my case for necessary existence.

Consider the arguments I have presented for necessary existence in light of Plantinga's approach to modality *de re*. Take first the formal arguments presented in Chapter 6. One formula that this approach validates is an essentialist interpretation of the converse Barcan formula, which is at the heart of the second formal argument for necessary existence. Plantinga argues:

> For suppose its antecedent is true and let x be any object—any actually existent object, that is—and W any world in which x exists. Everything is F is necessarily true and hence true in W. x, accordingly, has the property of being F in W. So x has that property in every world in which it exists—that is, x has it essentially.[8]

Formally, the essentialist version of the converse Barcan formula may be represented as:

(EBFC) $\Box\forall xFx \supset \forall x\Box_E Fx$.

Given the equivalence between Plantinga's essentialist modal operator and the necessity operator, Plantinga's endorsement of the essentialist converse Barcan formula is, in effect, an endorsement of the free-logical version of the converse Barcan formula:

(FBFC) $\Box\forall xFx \supset \forall x\Box(E!x \supset Fx)$.

[8] Plantinga 1974, p. 59.

As I discussed in Chapter 8, necessary existence cannot be derived from (FBFC). Rather, essential existence can be derived from (FBFC). The same consequence holds with respect to the remaining formal arguments on Plantinga's approach.

I turn now to the metaphysical argument presented in Chapter 5. Recall that the following three principles underlie the premises of the argument.

(1*) $\Box(\varphi(x) \supset T[\varphi(x)])$

(2*) $\Box(T[\varphi(x)] \supset E![\varphi(x)])$

(3*) $\Box(E![\varphi(x)] \supset E!x)$

Note that all three of these principles are *de re* modal claims. Given Plantinga's approach to *de re* modality, these principles have to be reinterpreted as the following set of principles (where I have retained the standard necessity operator):

(E1*) $\Box((E!x \wedge E![\varphi(x)]) \supset (\varphi(x) \supset T[\varphi(x)]))$

(E2*) $\Box(E![\varphi(x)] \supset (T[\varphi(x)] \supset E![\varphi(x)]))$

(E3*) $\Box((E!x \wedge E![\varphi(x)]) \supset (E![\varphi(x)] \supset E!x))$

While (E1*) is not guaranteed by the principles of propositional modal logic, (E2*) and (E3*) are so guaranteed. This consequence is important for Plantinga's arguments for his approach to modality *de re* and his favoured interpretation of quantified modal logic.

Before concluding this section, we can apply Plantinga's account of modality *de re* not only to the arguments for necessary existence but also to the argument for the account itself. Plantinga assumes that some formulas of *de re* necessity are true of contingent existents. The natural formal representation of this claim is: $\exists x(\Box Fx \wedge$

$\neg\Box E!x$). Plantinga's second assumption is that if an individual is in the extension of a unary predicate at a world, then the individual exists in that world. This claim is naturally understood as a generalisation of (2*): $\forall x\Box(Fx \supset E!x)$. These two assumptions entail the conclusion that some individual both is and is not a necessary existent. Plantinga takes the lesson of this contradiction to be that the necessity operator must be re-interpreted as an essentiality operator. The two assumptions then become: $\exists x(\Box_E Fx \wedge \neg\Box_E E!x)$ and $\forall x\Box_E(Fx \supset E!x)$. Given the equivalence between formulas containing the essentiality operator and the standard necessity operator, these two formulas are equivalent to the formulas $\exists x(\Box(E!x \supset Fx) \wedge \neg\Box(E!x \supset E!x))$ and $\forall x\Box(E!x \supset (Fx \supset E!x))$. The second conjunct of the first assumption – the formula $\neg\Box(E!x \supset E!x)$ – is the denial of the necessity of a logical truth. Plantinga accepts that the logical truths of the propositional calculus and first order quantification theory are all necessary.[9] Thus, the first assumption cannot be true, on Plantinga's account. Also, the second assumption is a logical truth. As everything follows from a contradiction and a logical truth, Plantinga's view of modality *de re* cannot be supported by this argument. Consequently, Plantinga's account of modality *de re* undermines his only argument for this account. Why then should we adopt it?

Plantinga's Interpretation of Quantified Modal Logic

Just as Plantinga's approach to modality *de re* renders the principle underlying the second premise of the metaphysical argument for necessary existence a logical truth, this

[9] Plantinga 1974, pp. 1-2.

approach also renders the principle underlying the third premise a logical truth. But while Plantinga affirms the second premise, he denies the third, and this denial is an important part of his favoured interpretation of quantified modal logic.

On Plantinga's interpretation of quantified modal logic, variables range over individual essences rather than individuals themselves; similarly, individual constants denote individual essences rather than individuals themselves. The existence predicate, on this interpretation, must be reinterpreted as an exemplification predicate. For example, the claim that it is possible that Socrates exists is the claim that for some possible world w, had w been actual, the individual essence of Socrates would have been exemplified.

An apparent problem for this approach is the existence of unexemplified essences. Plantinga accepts that there are unexemplified individual essences on the basis that necessary existence is false and individual essences are properties. The argument is supposed to run as follows.

> Since individual essences are properties, they are necessary existents. But not all individual essences are exemplified in every world. Thus, there are unexemplified individual essences.

That there are unexemplified essences amounts to a denial of a claim importantly similar to the principle underlying the third premise of the metaphysical argument. This principle noted above is: $\Box(E![\varphi(x)] \supset E!x)$. Instead of interpreting $[\varphi(x)]$ as the proposition that $\varphi(x)$, where $\varphi(x)$ is any formula in which x is free, we can interpret $[\varphi(x)]$ as the property of being x such that $\varphi(x)$. For example, Plantinga denies that necessarily, if the individual essence of Socrates exists, then so does Socrates. But we have argued in

the previous section that the formal representation of this claim on Plantinga's account of modality *de re* is a logical truth. In sum, though Plantinga motivates his interpretation of modal logic by the following take on the metaphysical argument of Chapter 5,[10]

(1) Necessarily, if I do not exist then the proposition that I do not exist is true.

(2) Necessarily, if the proposition that I do not exist is true then the proposition that I do not exist exists.

(¬5) It is not necessary that I exist.

Therefore,

(¬3) It is not necessary that if the proposition that I do not exist exists then I exist.

his approach to modality *de re* renders the formal representation of (2) as a logical truth, the formal representation of (¬5) as a contradiction, and the formal representation of (¬3) as a contradiction. Accordingly, Plantinga must either deny the account he gives of *de re* modality or deny the motivation he gives for his favoured interpretation of quantified modal logic.

SUMMARY

This chapter examined Plantinga's approach to modality *de re* and his favoured interpretation of quantified modal logic. I argued that Plantinga's approach is inadequate because it does not allow for the formal representation of necessary existence, even if one wishes to deny it, nor does this approach validate intuitively valid arguments. Furthermore, this approach renders the argument Plantinga gives for his approach to

[10] This argument is a summary of the argument Plantinga gives in Plantinga 1983.

modality *de re* unsound. This approach also seriously undercuts the motivation Plantinga gives for his favoured interpretation of quantified modal logic. As a result, one of the two accounts must be sacrificed. Because Plantinga's approach to modality *de re* essentially depends on both accounts, this approach must be denied. Consequently, Plantinga's approach poses no difficulty to necessary existence.

11

LEWIS, FORBES, AND RAMACHANDRAN ON COUNTERPART THEORY

David Lewis offers a highly influential theory for reasoning about modality, which he terms 'counterpart theory' (CT).[1] This theory is an alternative to the standard theory of modality – quantified modal logic – which has been the focus of my discussion up to this point. Lewis's CT is of interest not only because it is an influential theory of modality, but also because it has specific relevance to my defence of necessary existence. This is so because on two of the versions of counterpart theory given by Lewis, on the version given by Forbes, and on the version given by Ramachandran, necessary existence is false. In this chapter, I will argue against the adoption of these four versions of counterpart theory.

COUNTERPARTS

A counterpart of an individual is something that resembles that individual more closely than anything else in some world. Counterparts are introduced into modal theory for the following reason. The central assumption of all forms of counterpart theory is that individuals are world-bound. That is, everything else that exists in this world exists in only this world. This assumption gives rise to the problem of explaining the apparent falsity of *de re* modal propositions, such as the proposition

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[1] Lewis 1968, reprinted in Lewis 1983. Page references are to the reprinted version. I use 'CT' to abbreviate Lewis's specific version of counterpart theory, and I use 'counterpart theory' to refer to the family of theories that developed from CT.

that David is essentially wearing a white shirt. If I exist in only this world and I am, in fact, wearing a white shirt, then I am essentially wearing a white shirt. This result is clearly absurd. In order to avoid this result while maintaining the assumption that individuals are world-bound, a modal sentence is taken to express a proposition about the counterparts of the individuals mentioned in the sentence. For example, the modal sentence 'Necessarily I am human' expresses the proposition that for all possible worlds w, all my counterparts in w are human, and my counterparts in w are those individuals that resemble me more closely than any other individuals in w. But what is the nature of this relation obtaining between my counterparts and me?

The counterpart relation is a similarity relation of a specific kind. It is reflexive, but neither symmetric nor transitive. In order to see this, say that a exists in a world w_0, b exists in a world w_1, and c exists in a world w_2. Regarding reflexivity, a is a counterpart of a, b is a counterpart of b, and c is a counterpart of c because an individual resembles itself more than any other individual. So the counterpart relation is reflexive. Regarding symmetry, if we assume that a is a counterpart of b, it need not be the case that b is a counterpart of a because there may be some other individual, say d, that exists in w_1 and resembles a more closely that b does. So the counterpart relation is not symmetric. Regarding transitivity, if we assume that a is a counterpart of b and that b is a counterpart of c, it need not be the case that a is a counterpart of c because there may be some other individual, say e, that exists in w_0 and resembles c more closely that a does. So the counterpart relation is not transitive.

There is a further aspect of the counterpart relation: an individual may have more than one counterpart in a given world, and two individuals may have a common counterpart in a given world. To see this, consider the following situations, where a exists in w_0 and both b and d exist in w_1. Say that b and d resemble a to the same

degree and no other individual in w_1 resembles a more than b and d do. In this case, a has two counterparts in w_1, namely, b and d. Say that a is a counterpart of b, and no other individual resembles d in w_0 more than a does. In this case, a is a counterpart of both b and d.

Finally, there are two claims, which are of particular interest for necessary existence, that Lewis chooses not to postulate.[2] Lewis does not postulate that for any two worlds, anything in one is a counterpart of something in the other and that for any two worlds, anything in one has a counterpart in the other. If both these claims were postulated, necessary existence would follow. But even though Lewis does not postulate necessary existence, it turns out that necessary existence is true in CT after all. To see this, I will sketch Lewis's formal presentation of CT.

THE POSTULATES OF CT

The following formal presentation of Lewis's counterpart theory remains unchanged in all three versions of counterpart theory offered by Lewis. These versions might be seen as variations on the theme formalised below. To begin the exposition of this theme, I give the primitive predicates of counterpart theory. These are:[3]

Wx: x is a possible world

Ixy: x is in possible world y

Ax: x is actual

Cxy: x is a counterpart of y.

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[2] Lewis 1968, p. 29.
[3] These clauses are quoted from Lewis 1968, p. 27.

Combining these primitive predicates, Lewis forms the following eight postulates that together constitute the framework of his counterpart theory.[4]

P1: $\forall x \forall y(Ixy \supset Wy)$
(Nothing is in anything except a world)

P2: $\forall x \forall y \forall z(Ixy \wedge Ixz \,.\supset y = z)$
(Nothing is in two worlds)

P3: $\forall x \forall y(Cxy \supset \exists z Ixz)$
(Whatever is a counterpart is in a world)

P4: $\forall x \forall y(Cxy \supset \exists z Iyz)$
(Whatever has a counterpart is in a world)

P5: $\forall x \forall y \forall z(Ixy \wedge Izy \wedge Cxz \,.\supset x = z)$
(Nothing is a counterpart of anything else in its world)

P6: $\forall x \forall y(Ixy \supset Cxx)$
(Anything in a world is a counterpart of itself)

P7: $\exists x(Wx \wedge \forall y(Iyx \equiv Ay))$
(Some world contains only actual things)

P8: $\exists x Ax$
(Something is actual)

By P2 and P8, the actual world is unique. We can then abbreviate the definite description 'the actual world' making use of the following definition:

$@ =_{df.} \iota x \forall y(Iyx \equiv Ay)$.[5]

While these eight postulates form the basis of all the versions of Lewis's counterpart theory, the two versions of his original exposition include a scheme for translating formulas of quantified modal logic into formulas of counterpart theory. The two versions differ in their translation of modal formulas of quantified modal logic into

[4] These postulates are quoted from Lewis 1968, p. 27.
[5] This abbreviation is given in Lewis 1968, p. 27.

counterpart theory, and these variant translations have important consequences for necessary existence.

TRANSLATING NON-MODAL FORMULAS INTO COUNTERPART THEORY

Counterpart theory and quantified modal logic have the same subject matter; in fact, Lewis regards these systems as 'rival ways of formalising our modal discourse'.[6] Lewis attempts to give an adequate scheme for translating formulas of quantified modal logic into formulas of counterpart theory. If counterpart theory and quantified modal logic are rivals, it is not obvious that there needs to be even an extensionally correct translation scheme. Lewis nevertheless gives two such schemes. They contain a common treatment of the translation of non-modal formulas into counterpart theory, but they differ on their treatment of the translation of modal formulas into counterpart theory.

The following is Lewis's set of rules for translating non-modal formulas into formulas of counterpart theory.[7]

T1: The translation of ϕ is $\phi^{@}$ (ϕ holds in the actual world); that is, in primitive notation, $\exists\beta(\forall\alpha(I\alpha\beta \equiv A\alpha) \wedge \phi^{\beta})$

Lewis then provides a recursive definition for ϕ^{β} (ϕ holds in possible world β):

T2a: ϕ^{β} is ϕ, if ϕ is atomic

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[6] Lewis 1968, p. 29. See also Lewis 1993, p. 69 where he contrasts one approach of reasoning about modality where we first make use of a modal language and then appeal to a possible worlds semantics, as opposed to his approach where we talk of possible worlds from the start. Lewis's comments in his 1968 article are importantly different from his comments in Lewis 1993: in 1993 Lewis explicitly pairs CT with his modal realism whereas in 1968 he makes no such pairing. As I suggest below, the change is due to a collapse of Lewis's translation project, a project that obviously still appeared viable to him in 1968.

[7] These translation principles are quoted from Lewis 1968, pp. 30-31.

T2b: $(\neg\phi)^\beta$ is $\neg\phi^\beta$

T2c: $(\phi \wedge \psi)^\beta$ is $\phi^\beta \wedge \psi^\beta$

T2d: $(\phi \vee \psi)^\beta$ is $\phi^\beta \vee \psi^\beta$

T2e: $(\phi \supset \psi)^\beta$ is $\phi^\beta \supset \psi^\beta$

T2f: $(\phi \equiv \psi)^\beta$ is $\phi^\beta \equiv \psi^\beta$

T2g: $(\forall\alpha\phi)^\beta$ is $\forall\alpha(I\alpha\beta \supset \phi^\beta)$

T2h: $(\exists\alpha\phi)^\beta$ is $\exists\alpha(I\alpha\beta \wedge \phi^\beta)$

This completes Lewis's set of translation rules. Though these translation rules concern the translation of non-modal formulas, they have important consequences for modal formulas such as necessary existence. In particular, the quantification principles are principles of restricted quantification. This is important for some modal claims such as necessary existence because these claims are meant to be claims about everything, unrestrictedly.

Though one can quantify unrestrictedly in counterpart theory, one cannot do so in quantified modal logic. As Lewis writes:

> To form the sentence ϕ^β (ϕ holds in world β) from the given sentence ϕ, we need only restrict the range of each quantifier in ϕ to the domain of things in the world denoted by β; that is, we replace $\forall\alpha$ by $\forall\alpha(I\alpha\beta \supset \ldots)$ and $\exists\alpha$ by $\exists\alpha(I\alpha\beta \,\&\, \ldots)$ throughout ϕ.[8]

Thus, Lewis does not allow for any sentence in quantified modal logic to have an absolutely unrestricted quantifier.

It seems arbitrary and unfair to limit the expressive power of quantified modal logic in this way. If counterpart theory can have unrestricted quantifiers, why cannot quantified modal logic? Lewis needs to justify this vital restriction. But any such

[8] Lewis 1968, p. 30.

justification seems doomed from the start: it is evident that quantified modal logic needs absolutely unrestricted quantification in order to deal with the subject matter the logic was designed to formalise, namely, modal metaphysics and some aspects of philosophical logic. Some of the topics that interest us in modal metaphysics involve determining which claims, such as necessary existence, hold of absolutely everything. In general, some opponents of necessary existence would be unhappy with the claim that though everything in this world contingently exists, everything in some other world is a necessary existent since they claim that everything – absolutely everything – contingently exists. The opponent of necessary existence is unable to make this claim with restricted quantifiers.

TRANSLATION SCHEME 1

While the translation scheme for non-modal formulas is common to both versions of Lewis's counterpart theory, the two versions differ on their treatment of the translation of modal formulas. The first translation scheme is characterised by the following pair of principles.

T2i: $(\Box\phi\alpha_1 \ldots \alpha_n)^\beta$ is $\forall\beta_1\forall\gamma_1 \ldots \forall\gamma_n(W\beta_1 \wedge I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n . \supset \phi^{\beta_1}\gamma_1 \ldots \gamma_n)$

T2j: $(\Diamond\phi\alpha_1 \ldots \alpha_n)^\beta$ is $\exists\beta_1\exists\gamma_1 \ldots \exists\gamma_n(W\beta_1 \wedge I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n \wedge \phi^{\beta_1}\gamma_1 \ldots \gamma_n)$

Given this scheme, the translation of necessary existence is the following:

$(\forall x\Box\exists y\, x = y)^@ = \exists\beta(\forall\alpha(I\alpha\beta \equiv A\alpha) \wedge (\forall x\Box\exists y\, x = y)^\beta)$

$(\forall x\Box\exists y\, x = y)^@ = \exists\beta(\forall\alpha(I\alpha\beta \equiv A\alpha) \wedge \forall x(Ix\beta \supset \Box\exists y\, x = y)^\beta)$

$$(\forall x \Box \exists y\, x = y)^{@} = \exists \beta(\forall \alpha(I\alpha\beta \equiv A\alpha) \wedge \forall x(Ix\beta \supset \forall \beta_1 \forall \gamma((W\beta_1 \wedge I\gamma\beta_1 \wedge C\gamma x) \supset \exists y\, \gamma = y)^{\beta_1}))$$

$$(\forall x \Box \exists y\, x = y)^{@} = \exists \beta(\forall \alpha(I\alpha\beta \equiv A\alpha) \wedge \forall x(Ix\beta \supset \forall \beta_1 \forall \gamma((W\beta_1 \wedge I\gamma\beta_1 \wedge C\gamma x) \supset \exists y(Iy\beta_1 \wedge \gamma = y)))$$

Lewis has identified a particularly counter-intuitive interpretation on which necessary existence is true on this scheme. The translation of necessary existence is true even when an actual individual has no counterpart at some world.[9] That necessary existence is true on this interpretation is a highly counter-intuitive consequence. Intuitively, necessary existence should be the claim that all actual individuals have a counterpart in all possible worlds. But Translation Scheme 1 does not deliver this result and allows for a highly counter-intuitive interpretation on which necessary existence is true. This interpretation prompts Lewis to examine a second translation scheme that invalidates necessary existence. But this translation scheme has another, unattractive consequence. I now turn to this translation scheme.

TRANSLATION SCHEME 2

Lewis states that Kaplan has suggested the following replacement clauses for T2i and T2j that would eliminate this problem:[10]

T2i′: $(\Box\phi\alpha_1 \ldots \alpha_n)^{\beta}$ is $\forall\beta_1(W\beta_1 \supset \exists\gamma_1 \ldots \exists\gamma_n(I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n \wedge \phi^{\beta_1}\gamma_1 \ldots \gamma_n))$

T2j′: $(\Diamond\phi\alpha_1 \ldots \alpha_n)^{\beta}$ is $\exists\beta_1(W\beta_1 \wedge \forall\gamma_1 \ldots \forall\gamma_n(I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n . \supset \phi^{\beta_1}\gamma_1 \ldots \gamma_n))$

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[9] Lewis 1968, p. 31.
[10] These translation principles are quoted from Lewis 1968, p. 32.

On this translation scheme, the translation of necessary existence is the following formula:

$$(\forall x \Box \exists y\ x = y)^{@} = \exists \beta(\forall \alpha(I\alpha\beta \equiv A\alpha) \wedge \forall x(Ix\beta \supset \forall \beta_1(W\beta_1 \supset \exists \gamma(I\gamma\beta_1 \wedge C\gamma x \wedge \exists y(Iy\beta_1 \wedge \gamma = y))))).$$

This translation prevents necessary existence from being true while an actual individual lacks a counterpart at some world. Thus, it seems that Kaplan's translation scheme solves the difficulty associated with providing an adequate translation scheme from formulas of quantified modal logic to formulas of counterpart theory.

Though this translation scheme does not incur the problem of the previous scheme, this scheme has problems of its own. As Lewis notes, on this translation scheme the formula $\exists x \Diamond x \neq x$ is true unless everything actual has a counterpart in every possible world, which, we may note, is the intuitive translation of necessary existence given above. Using T1 - T2j′ the translation of the formula $\exists x \Diamond x \neq x$ is:

$$(\exists x \Diamond\ x \neq x)^{@} = \exists \beta(\forall \alpha(I\alpha\beta \equiv A\alpha) \wedge \exists x(Ix\beta \wedge \forall \beta_1(W\beta_1 \wedge \forall \gamma((I\gamma\beta_1 \wedge C\gamma x) \supset \gamma \neq \gamma))).$$

Lewis remarks that with the Kaplan translation scheme we are 'out of the frying pan, into the fire'.[11]

TRANSLATION SCHEME 3

Lewis briefly considers combining the two translation schemes to produce the following hybrid scheme:

[11] Lewis 1968, p. 32.

T2i′: $(\Box\phi\alpha_1 \ldots \alpha_n)^\beta$ is $\forall\beta_1(W\beta_1 \supset \exists\gamma_1 \ldots \exists\gamma_n(I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n \wedge \phi^{\beta_1}\gamma_1 \ldots \gamma_n))$

T2j: $(\Diamond\phi\alpha_1 \ldots \alpha_n)^\beta$ is $\exists\beta_1\exists\gamma_1 \ldots \exists\gamma_n(W\beta_1 \wedge I\gamma_1\beta_1 \wedge C\gamma_1\alpha_1 \wedge \ldots \wedge I\gamma_n\beta_1 \wedge C\gamma_n\alpha_n \wedge \phi^{\beta_1}\gamma_1 \ldots \gamma_n)$

By this hybrid approach, Lewis could avoid two of the problems canvassed so far. If he adopted T2i′ as the principle governing the translation of formulas containing the necessity operator, he could avoid the problem of necessary existence being true even though something actual lacks a counterpart. Also, if he adopted T2j as the principle governing the translation of formulas containing the possibility operator, he could avoid the possible non-self identity of something actual. The most notable cost of combining these two principles is the loss of the duality of the modal operators.

ADJUDICATING THE THREE TRANSLATION SCHEMES

Thus, Lewis presents himself with three options, which can be assessed by means of the following chart.

Translation	Benefits	Cost
T2i and T2j	It preserves the duality of the modal operators. It does not allow for the possible non-self identity of something actual.	It allows for necessary existence to be true while an actual individual lacks a counterpart at some world.
T2i′ and T2j′	It preserves the duality of the modal operators. It does not allow for necessary existence to be true while an actual individual lacks a counterpart at some world.	It allows for the possible non-self identity of something actual.

T2i′ and T2j	It does not allow for necessary existence to be true while an actual individual lacks a counterpart at some world. It does not allow for the possible non-self identity of something actual.	It denies the duality of the modal operators.

Without any further argument or motivation, Lewis states that he 'chose to take T2i and T2j'.[12] His counterpart theory, therefore, is characterised by the postulates P1 – P8, the translation scheme for non-modal formulas, and the Translation Scheme 1 for modal formulas.

It is curious that Lewis does not argue for adopting T2i and T2j given his understanding of how philosophy is done. In another context, having acknowledged that it is rare for a philosophical theory to be conclusively refuted, Lewis writes that:

> Argle [an imaginary philosopher] has said what we accomplish in philosophical argument: we measure the price. Perhaps that is something we can settle more of less conclusively. But when all is said and done, and all the tricky arguments and distinctions and counterexamples have been discovered, presumably we will still face the question which prices are worth paying, which theories are on balance credible, which are the unacceptably counterintuitive consequences and which are the acceptably counterintuitive ones. On this question we may still differ. And if all is indeed said and done, there will be no hope of discovering still further arguments to settle our differences.[13]

I think Lewis is correct. Indeed, this is the method I have adopted in evaluating the options he selects for his translation scheme. Surprisingly, Lewis himself does not adopt this method here, but rather declares his preference without a discussion of the costs and benefits of this preference.

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[12] Lewis 1968, p. 32.
[13] Lewis 1983, p. x.

However, there is another option that Lewis does not consider: in the absence of a more satisfactory translation scheme, he could abandon the project of translating formulas of quantified modal logic into CT. The situation facing Lewis seems to invite this unconsidered option since the virtues of each position are the vices of the other positions, and vice versa. None of the options Lewis considers are agreeable, from Lewis's distinctive perspective. Instead of choosing between bad options, Lewis should determine what forces the choice and deny that. What forces the choice in this case is the assumption that there is an adequate translation scheme from formulas of quantified modal logic into formulas of CT using T2i and T2j or T2i′ and T2j′ or T2i′ and T2j. From Lewis's perspective, it makes more sense to deny this assumption than to choose any of the three bad options.

Lewis does deny this assumption in his later work on counterpart theory.[14] This later version is characterised by the inclusion of the postulates P1 – P8 and the absence of any translation scheme for rendering formulas of quantified modal logic into counterpart theory. Lewis argues that there is no way to give a reasonable translation scheme from quantified modal logic into CT making CT 'a well-behaved formal language, free of ambiguity . . . free of devious semantic rules that work different ways in different cases . . . [and one that] affords a good regimentation of our ordinary modal thought'.[15] Abandoning the translation project, Lewis argues that instead of using quantified modal logic to formalise our modal talk first and then translating the

[14] Lewis 1986, pp. 12-13.
[15] Lewis 1986, p. 12.

formulas of quantified modal logic into CT, we should formalise our modal talk first in CT by making use of modal realism:

> What is the correct counterpart-theoretic interpretation of the modal formulas of the standard language of quantified modal logic? – Who cares? We can make them mean whatever we like . . . If this language of boxes and diamonds proves to be a clumsy instrument for talking about matters of essence and potentiality, let it go hang. Use the resources of modal realism *directly* to say what it would mean for Humphrey to be essentially human, or to exist contingently.[16]

Rather than being a radical departure from his previous work, this move is a natural extension of Lewis's original presentation of counterpart theory. This is so because contrary to what Lewis states in his original presentation, one might think that the motivation underlying Lewis's CT is a prior commitment to modal realism. The natural move at this point is to deny any adequate translation scheme for rendering formulas of quantified modal logic into formulas of CT.

I must now say why I believe that Lewis's CT is motivated by modal realism. Lewis's CT is designed to be an alternative to the standard quantified modal logic. In his original presentation of the theory, he claims that the theory is motivated by a desire for a purely extensional theory of modality in place of the intensional theory of modality given by quantified modal logic.[17] Lewis asks: We can formalise discourse about many topics in standard logic, that is, quantification theory and a domain of quantification without ineliminable singular terms, why not do the same for modality? He claims that CT performs just this task. But it is clear that we can achieve this result in quantified modal logic by adopting Kripke's semantics. Take, for example, the formula of quantified modal logic, $\forall x \Box \exists y(x = y)$. This formula can be given a purely extensional reading using Kripke's semantics: everything is such that in all

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[16] Lewis 1986, pp. 12-13 (his emphasis).
[17] Lewis 1968, p. 26.

possible worlds there is something that is identical with it ($\forall x \forall w \exists y(x = y)$, where '$w$' is a variable ranging over possible worlds). Thus quantified modal logic when interpreted via Kripke semantics is equivalent to CT in the following regard: we can give a purely extensional theory of modality formulated in quantification theory with a domain of quantification and without ineliminable singular terms. So CT has no advantage in this regard over quantified modal logic paired with Kripke semantics. Therefore, the motivation Lewis states in his original article cannot be a reason for adopting CT.

Thus, it might be thought that the reason for adopting counterpart theory is a prior commitment to modal realism. A fundamental element of Lewis's modal realism is the claim that possible worlds are concrete, spatio-temporal systems that are composed of all and only concrete, spatio-temporal individuals.[18] On this assumption, it would be absurd to suppose that individuals exist in many possible worlds, which a quantified modal logic with Kripke semantics requires. To see this, consider the claim that I am a necessary existent. On the Kripke semantics reading of the quantified modal logic formula $\Box E!a$ (where 'a' is an individual constant standing for me and the existence predicate is defined as the formula $\exists y(x = y)$) for all possible worlds, I exist, or more naturally, I exist in all possible worlds. This interpretation clearly requires that I exist in many possible worlds. Now take Lewis's modal realist understanding of what it means to exist in a possible world: to exist in a possible world is to be a concrete, spatiotemporal part of a concrete, spatiotemporal system. So the modal realist interpretation of the Kripke semantics reading of the quantified modal logic formula $\Box E!a$ is that I am a concrete, spatiotemporal part of all possible worlds, which themselves are concrete, spatiotemporal systems – which is absurd

[18] Lewis's fullest presentation and defence of this view can be found in Lewis 1986.

given that there are many possible worlds. I can be a concrete, spatiotemporal part of only one concrete, spatiotemporal system. And this modal realist idea that individuals are world-bound, is the central idea of Lewis's CT.

That individuals are world-bound is at least implicitly asserted, in the original presentation of CT – namely, in his definition of the primitive predicate '*I*' ('*Ixy*' abbreviates '*x* is in possible world *y*') and in the requirement that an individual can only be in one possible world.[19] This definition and the accompanying requirement make sense if one supposes a modal realist understanding of what it means to exist in a world and of what worlds themselves are. In a later publication, Lewis more explicitly acknowledges his modal realist understanding of what it means to exist in a world:

> The best thing to do, I think, is to escape the problems of trans-world identity by insisting that there is nothing that *inhabits* more than one world. There are some abstract entities, for instance numbers or properties, that *inhabit* no particular world but exist alike from the standpoint of all worlds, just as they have no location in time and space but exist alike from the standpoint of all times and places. Things that do *inhabit* worlds – people, flames, buildings, puddles, concrete particulars generally – *inhabit* one world each, no more.[20]

Lewis does not here signal any departure from his earlier understanding; we may reasonably assume that to exist in a world is to inhabit a world since the language of inhabiting a world seems most at home in a modal realist understanding of the existence of individuals and of the composition of worlds. Thus, modal realism appears to be at work even in the earliest formulation of counterpart theory.

If we follow Lewis's advice and make use of the resources of modal realism directly, necessary existence comes to the following claim: for every possible world

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[19] Lewis 1968, p. 27.
[20] Lewis 1973, p. 39 (emphasis added).

w, every actual individual has a counterpart in *w*. Counterparts are spatio-temporally located individuals on Lewis's view. So on Lewis's modal realist account of counterpart theory, necessary existence is the claim that all actual individuals have a spatio-temporally located counterpart in all possible worlds. But this claim is highly counter-intuitive for the same reason that necessary existence, where 'exists' is taken to have some naturalistic meaning, is counter-intuitive. Just as it seems that I need not have been a concrete individual in every possible world, it seems that I need not have had a counterpart in every possible world, where 'counterpart' is taken to have a naturalistic meaning.

Given a direct appeal to modal realism, necessary existence is apparently false. Though modal realism is a theoretically powerful account of possible worlds, it is a metaphysically implausible theory. While modal realism is a sufficient basis for the denial of necessary existence, space does not permit me to argue against it. I will simply take it that few would adopt modal realism in order to deny necessary existence. Though Lewis's counterpart theory would not be accepted by many because of its commitment to modal realism, there are other versions of counterpart theory that do not share this commitment. The next section considers such a theory, a theory developed by Graeme Forbes.

FORBES ON CANONICAL COUNTERPART THEORY

While Lewis's adoption of counterpart theory is motivated by his modal realism, Forbes's approach is motivated by the assumption that all identities are grounded in claims not involving identity.[21] In order to demonstrate this motivation, consider the

[21] Forbes 1985, pp. 126-131.

sentence 'Gore might have been president'. This sentence expresses the claim that in some possible world *w*, Gore is president. The truth of this claim relies on the identity between Gore, who is not president in this world, with Gore, who is president in *w*. Now on Forbes's view, this transworld identity claim must be grounded in some claim not containing identity. The claim that grounds the transworld identity claim is the claim that the referent of 'Gore' in *w* is more similar to the referent of 'Gore' in this world than any other individual in *w*. Making use of the 'counterpart' terminology, the sentence 'Gore might have been president' expresses the claim that Gore has a counterpart in some possible world that is president. Accordingly, given the view that identity claims must be grounded in claims not involving identity, it is natural to adopt counterpart theory.

A supposedly adequate translation scheme from formulas of quantified modal logic to formulas of counterpart theory is central to Forbes's work. Let L_m be the language of quantified modal logic and L_c the language of counterpart theory. Forbes thinks that

> sentences of L_c are intended to interpret the meanings of L_m-sentences in the strong sense that they should be the outputs of an adequate theory of meaning, which we can formulate as a model theory, for L_m, written in L_c plus set theory.[22]

Thus, Forbes disagrees sharply with Lewis over the need for an adequate translation scheme rendering formulas of quantified modal logic into formulas of counterpart theory. And this is the reason for their disagreement: where Lewis thinks that counterpart theory gives the literal, metaphysical truth of the matter, Forbes regards counterpart theory as a technically convenient device for giving the model theory of quantified modal logic rather than giving the best picture of the literal, metaphysical

[22] Forbes 1982, p. 33.

truth of the matter, which is Lewis's view.[23] I return to this discussion later in this section.

The quantified modal logic for which Forbes devises his translation scheme is the S5, free quantified modal logic devised by Fine.[24] The features of this system considered by Forbes to be important are the following set of claims:[25]

(i) there is no accessibility relation on the set W of worlds;

(ii) '$\Box$' expresses strong necessity, that is, the truth of '$\Box A$' at any world requires the truth of A at every world, not just at worlds in which the denotations of any terms in A all exist;

(iii) a predicate can be satisfied at a world w by objects which do not exist in w – thus, Jones is identical to himself even with respect to worlds in which he does not exist;

(iv) L_m contains a logically constant predicate 'Exists', whose extension at each world w in any model is the inner domain D_w of w; presumably, the outer domain is the domain of the union of the domains of all worlds;

(v) quantifiers are actualist, that is, a quantifier variable ranges over only the inner domain of the world with respect to which the relevant formula is being evaluated.

Forbes states that this is the system given by Kripke in his 'Semantical Considerations on Modal Logic', and he thus calls this system 'canonical'.[26] Because his counterpart theory translates 'canonical' quantified modal logic, Forbes calls his system 'canonical counterpart theory' (CCT).

Feature (iii) is a denial of a claim Plantinga has termed 'serious actualism'. This claim can be formalised as the formula: $\Box(Fx \supset E!x)$. It can be derived from the Existence Principle and the rule of necessitation. Thus, if serious actualism is false, then either the Existence Principle is false or the rule of necessitation is invalid. I

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[23] Forbes, 1983; Forbes 1994, p. 37.
[24] Fine 1978.
[25] The clauses are quoted from Forbes 1982, p. 34.
[26] Kripke 1963.

argued in Chapter 2 that these principles are true and valid, respectively, because they are essential for philosophical logic. And Forbes accepts the rule of necessitation. Therefore, if he denies serious actualism (as he says in (iii)), then he must deny the Existence Principle.

Interestingly, Forbes combines a denial of serious actualism with a claim that the existence predicate is a logical constant. Recall the argument given in Chapter 2: if the existence predicate is governed by the Existence Principle, then the existence predicate is a logical constant. Here, Forbes's existence predicate is emphatically not governed by the Existence Principle. So what reason do we have for thinking that Forbes's existence predicate is a logical constant? There is little reason to think that Forbes's existence predicate is a logical constant. In contrast, there is good reason to think that it is not.

Given that the meaning of a logical constant is determined by its logical connections, it seems very unlikely that a logically constant existence predicate could be anything other than the predicate governed by the Existence Principle. Consider the other prominent meanings of 'exists' on offer: 'is causally efficacious', 'is spatially located', and 'is temporally located'. It is simply implausible to suppose that any of these meanings are given by the logical connections of the existence predicate. It seems unreasonable to suppose that a logically constant existence predicate could be anything other than that predicate governed by the Existence Principle. Consequently, it appears that (iii) and (iv) are incompatible. So even before considering Forbes's translation scheme, it seems that the quantified modal logic he

wants to translate into counterpart theory is deeply flawed because of the incompatibility of features (iii) and (iv).[27]

Feature (iii) is essential to Forbes's take on counterpart theory because his approach combines contingent existence with the stipulation that the counterpart relation is structurally isomorphic to the transworld identity relation. Contrary to Lewis's approach (where an object may have more than one or even no counterparts at a given world) on Forbes's approach, an object has exactly one counterpart at any given world. This stipulation enables Forbes to give translation principles that yield for every theorem of canonical quantified modal logic a translation of that theorem in CCT; and for every theorem of CCT that is reverse translatable into an L_m sentence, there is a reverse translation of that theorem into canonical quantified modal logic. However in order to preserve contingent existence, Forbes has to allow that an object may have a counterpart at a given world, but this counterpart does not exist at that world. So though any given object x has a counterpart at any given world w, x's counterpart in w need not exist in w. In order to make this allowance, Forbes stipulates that for every object x in the domain of all possible objects in a model (the union of all the domains of all possible worlds), if x has no counterpart that exists in a world w (is an element of the domain of w), then x is its own counterpart at w.

Forbes revises Lewis's two-place counterpart relation to a three-place relation that includes a world element: instead of Lewis's '*Cxy*'(x is a counterpart of y) we have '*Cxyw*' (x is a counterpart of y at w). This revision leaves open the question whether y is a member of the domain of w or not. Consequently, Forbes's main idea is that Lewis's classical CT should be revised to a free counterpart theory, which is

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[27] Before leaving the discussion of these features, note that feature (v), the requirement that quantifiers be actualist, runs into the same problems incurred by Lewis's account of restricted quantification in quantified modal logic. Requiring quantifiers to be actualist seems arbitrary and gives the wrong results because the formulas that principally interest us here are meant to contain absolutely unrestricted quantification.

the counterpart theory most naturally paired with Fine's free quantified modal logic. Forbes makes this idea precise in his translation scheme from quantified modal logic into his CCT. He writes that 'the main technical accomplishment of the scheme is to solve the problem of contingent existence outstanding since Lewis's original paper', the problem being how to combine counterpart theory with a denial of necessary existence.[28] It is clear that his "solution" is dependent on his free counterpart relation – the very relation that is most objectionable about Forbes's approach. Before arguing against Forbes's free counterpart relation, I should give Forbes's translation scheme.

Forbes begins by stipulating that the translation of any L_m formula ϕ into an L_c formula is the relativisation of ϕ to the actual world w^*. Formally, this stipulations is:

$$\forall \phi \in Form(L_m), Trans_{Lc}(\phi) = Rel(\phi, w^*).^{29}$$

Forbes then gives the following recursive specification of $Rel(\phi, w)$ for an arbitrary world w:[30]

(CCT1) If $F(t_1 \ldots t_n)$ is atomic, $Rel(F(t_1 \ldots t_n), w) = F(t_1 \ldots t_n, w)$ except if F is '='; $t_1 \ldots t_n$ are either free variables or individual constants.

(CCT2) $Rel(\ulcorner \neg A \urcorner, w) = \ulcorner \neg Rel(A, w) \urcorner$.

(CCT3) $Rel(\ulcorner A \wedge B \urcorner, w) = \ulcorner Rel(A, w) \wedge Rel(B, w) \urcorner$.

(CCT4) $Rel(\ulcorner \forall v A \urcorner, w) = \ulcorner (\forall v)(Exists(v, w) \supset Rel(A, w) \urcorner$.

(CCT5) $Rel(\ulcorner \exists v A \urcorner, w) = \ulcorner (\exists v)(Exists(v, w) \wedge Rel(A, w) \urcorner$.

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[28] Forbes 1983, p. 150.
[29] This formalisation is quoted from Forbes 1982.
[30] These clauses are taken from Forbes 1982. He revises certain clauses in later work, but these revisions are not relevant to my objection to his free counterpart relation, which remains unchanged throughout his publications.

Forbes then writes, 'For each modal operator there are two cases, according to whether the formula it governs does or does not contain terms not within the scope of any other modal operator in that formula. If A contains no such terms, then

(CCT6) $\quad Rel(\ulcorner\Diamond A\urcorner, w) = \ulcorner(\exists w_j)Rel(A, w_j)\urcorner$.'[31]

He continues, 'But if $t_1 \ldots t_n$ are constants are free variables in $\Diamond A$ within the scope of the initial '$\Diamond$' but no other modal operator, then

(CCT7) $\quad Rel(\ulcorner\Diamond A\urcorner, w) = \ulcorner(\exists w_j)(\exists v_1) \ldots (\exists v_n)(Cv_1t_1w_j \wedge \ldots \wedge Cv_nt_nw_j \wedge (Rel(A(t_i/v_i), w_j)\urcorner$, where v_i and world variable are peculiar to L_c and are chosen to avoid clash of variables.'[32]

The analogues of these claims for claims involving the necessity operator are the following.

(CCT8) $\quad Rel(\ulcorner\Box A\urcorner, w) = \ulcorner(\forall w_j)Rel(A, w_j)\urcorner$.

(CCT9) $\quad Rel(\ulcorner\Box A\urcorner, w) = \ulcorner(\forall w_j)(\forall v_1) \ldots (\forall v_n)(Cv_1t_1w_j \wedge \ldots \wedge Cv_nt_nw_j \supset (Rel(A(t_i/v_i), w_j)\urcorner$.

Using a two-place existence predicate, $E!(x, w)$ (x exists in w), Forbes translates necessary existence into CCT as:

$$\forall x(E!(x, w^*) \supset \forall w \forall z(Czxw \supset \exists y(E!(y, w) \wedge z = y))).$$[33]

Forbes claims that this sentence is 'false for precisely the right reason', and that 'it is the introduction of the three-place counterpart relation and the inner/outer domain

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[31] Forbes 1982, p. 35.
[32] Forbes 1982, p. 35.
[33] Forbes 1982, p. 36.

distinction which facilitates this result'.[34] The three-place counterpart relation and the inner/outer domain distinction is the direct result of Forbes's free counterpart relation. So, Forbes's falsification of necessary existence is clearly dependent upon his free counterpart relation.

In evaluating whether or not Forbes has given a convincing case against necessary existence, we have to keep in mind the assumptions motivating his case. The first assumption is that identity claims must be grounded in claims not involving identity. This assumption motivates the adoption of counterpart theory. But we have already had reason to challenge this assumption in Chapter 3 where we considered counter-arguments to necessary existence. There I argued that identity is a primitive relation that does not need the metaphysical backing that Forbes thinks it does. The second assumption motivating Forbes's case against necessary existence is the denial of the Existence Principle. Again, I have already challenged this assumption in Chapter 2 where I argued that the Existence Principle is necessary for philosophical logic and modal metaphysics. As a result, it seems there is good reason, independent of necessary existence, for denying the assumptions needed for Forbes's case against necessary existence.

But even if we were to accept these assumptions, does Forbes give a persuasive case against necessary existence? It does not appear that he does on his own terms because of his view of the relation between counterpart theory and quantified modal logic. In describing his views in contrast to those of Lewis, he writes:

> For Lewis, counterpart theory affords the most literal means of describing modal reality, and so, for example, in his eyes there is a real metaphysical issue as to whether individuals are worldbound or not.

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[34] Forbes 1982, p. 36.

> For me there is no real issue here: a standard Kripke model is itself a special case of a counterpart-theoretic model, one in which each possible object is its own sole counterpart at every world. I view counterpart-theoretic semantics as merely the appropriate technical framework in which to build a quantified modal logic on top of fuzzy logic; and I would say that it is the modal language, not the counterpart-theoretic one, that affords the most literal means of describing modal reality.[35]

Forbes's view prompts the question: How seriously should we take counterpart theory if the literal truth of the matter is given in the modal language? If the literal truth of the matter is given only in the modal language, it seems that we would be better off arguing about the truth-value of formulas such as necessary existence directly in the modal language as opposed to translating them into CCT. Forbes may respond that translating these formulas into CCT provides a test for determining their truth-value. But, again, if the modal language gives the most literal means of describing modal reality, then what force does the falsity of the CCT translation of necessary existence, for example, have for evaluating the truth-value of necessary existence itself? In the absence of a persuasive answer to these questions, I take it that Forbes has not provided a convincing case against necessary existence.

RAMACHANDRAN'S COUNTERPART THEORY

Ramachandran proposes an alternative translation scheme that stays close to Lewis's original formulation, without, he argues, encountering the problems faced by Lewis's formulation. Ramachandran attempts to preserve Lewis's two-place counterpart relation while at the same time interpreting '□' as strong necessity. In order to do

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[35] Forbes 1994, p. 37.

this, he develops a Russellian counterpart analysis of the truth-in-a-world of atomic sentences in counterpart theory. Take, for example, the sentence:[36]

(L) Lewis is a philosopher.

On a Russelllian counterpart analysis, the truth of this sentence in a world involves the conjunction:

(La) Some thing is (a counterpart of) Lewis,

(Lb) At most one thing is (a counterpart of) Lewis, and

(Lc) Anything which is (a counterpart of) Lewis is a philosopher.

Because the counterpart relation is a similarity relation, (Lc) seems implausible: one object can have more than one counterpart at a given world. But Ramachandran thinks it is plausible to suppose that (L) is true in a world *w* just in case (La) and (Lc) are true in *w*. This claim, together with the claim that (L) is necessarily true just in case (L) is true in all possible worlds, is the heart of Ramachandran's translation scheme.

Because Ramachandran is committed to the above Russellian counterpart analysis of an atomic sentence's truth in a world, every occurrence of an individual constant or free variable, that is, a singular term, introduces both universal and existential quantification in the translation of a sentence into his version of counterpart theory (CT*). The introduction of both quantifiers for every term is in contrast to CT and CCT; in these schemes, a universal (existential) quantifier is introduced only if a term is within the scope of a necessity (possibility) operator. The

[36] For this example and analysis, see Ramachandran 1989, p. 134.

quantifiers in CT* will also, in general, have narrower scope than those in CCT or CT because they govern only atomic sentences.

Though there are important differences between Lewis's and Ramachandran's schemes, Ramachandran presupposes CT's syntax in presenting his translation scheme. To begin, he defines an atomic constituent of a sentence as an atomic sentence occurring in that sentence where different tokens of the same sentence are understood to be distinct atomic constituents. The atomic constituents of the sentence $\exists x\Box\forall y(Fyx \supset \neg Gy)$ are thus: 'Fyx' and 'Gy'. The fragments of a sentence are the sections of a sentence divided by modal operators, and these sections need not be sub-sentences. For example, the fragments of the sentence $\exists x\Box\forall y(Fyx \supset \Diamond\neg Gy)$ are: '$\exists x$', '$\forall y(Fyx \supset$', and '$\neg Gy)$'. A modally-free occurrence of a term is defined as a free occurrence of the term in the fragment containing it. Thus, in the sentence $\forall x(Fxy \vee \Box\neg Fxy)$, both occurrences of '$y$' and the third occurrence of 'x' are modally-free.

In order to translate a sentence α of quantified modal logic into a sentence of CT*, the atomic constituents of α containing modally-free occurrences of terms are first translated. Ramachandran calls this first step the 'atomic translation of α' and abbreviates the resulting hybrid sentence by '$[\alpha]$'. In order to obtain $[\alpha]$, any atomic constituent ξ of α containing modally-free occurrences of term tokens $a_1, \ldots, a_n$ is replaced by

$$\exists b_1 Cb_1a_1 \wedge \ldots \wedge \exists b_n Cb_n a_n \wedge \forall b_1 \ldots b_n((Cb_1a_1 \wedge \ldots \wedge Cb_n a_n) \supset \xi[b_k/a_k])$$

where $\xi[b_k/a_k]$ is the result of replacing every occurrence of a_k in ξ with b_k for all k.[37] Also at this stage, any atomic constituent having the form '$a = b$', even when 'a' is

[37] Ramachandran 1989, p. 135.

identical to '*b*', is replaced by: $\forall x(Cxa \equiv Cxb)$.[38] The intuitive reading of this rule is that the sentence '$a = b$' is true in a world just in case a and b have the same counterparts in that world, even if they have none in that world. This rule is designed to ensure, together with the other translation rules, the validity of the sentence: $\Box(x = x)$, which Ramachandran along with Lewis finds 'quite plausible'.[39] It is this rule that I find objectionable about Ramachandran's account. In presenting my argument against it le me start by giving Ramachandran's translation rules, which are modelled closely on Lewis's.[40]

T1*: $Tr(\alpha) = [\alpha]^{@}$

T2a*: β^{u} is β, if β is atomic

T2b*: $(\neg\beta)^{u}$ is $\neg\beta^{u}$

T2d*: $(\beta \vee \gamma)^{u}$ is $\beta^{u} \vee \gamma^{u}$

T2g*: $(\forall v\beta)^{u}$ is $\forall v(Ivu \supset \beta^{u})$

T2i*: $(\Box\beta)^{u}$ is $\forall y(Wy \supset \beta^{y})$

Given these translation rules, necessary existence has the following first-stage, hybrid atomic translation:

[NE] $\forall x\Box\exists y(\exists zCzx \wedge \forall z(Czx \supset \forall v(Cvz \equiv Cvy)))$.

Using rules T1* - T2i* to translate [NE], we have the final translation:

$\forall x(Ix@ \supset \forall u(Wu \supset \exists y(Iyu \wedge (\exists z(Izu \wedge Czx) \wedge \forall z(Izu \supset (Czx \supset \forall v(Cvz \equiv Cvy)))))))$.

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[38] This rule is given in Ramachandran 1990, and it is an addition to the original scheme given in Ramachandran 1989.
[39] Ramachandran 1990, p. 164.
[40] These translation clauses are taken from Ramachandran 1989, p. 135.

The denial of this formula is consistent because an individual can lack a counterpart in a given world. Consequently, the CT* translation of necessary existence is not a logical truth. Thus, necessary existence is invalid on this proposal.

Returning to Ramachandran's rule that identity formulas, such as $a = b$, are to be replaced by indistinguishability formulas, such as $\forall x(Cxa \equiv Cxb)$, Forbes notes that this rule enables the formula $a = b$ to be true at a world even if neither a nor b have any counterparts existent, or in the inner domain, of that world. 'But', Forbes reasons, 'what holds for identity may well hold for other abstract properties and relations.'[41] This rule thus appears to open the door for a Forbesian free counterpart relation. Ramachandran responds by noting that instead of taking identity as primitive, he could take distinctness as primitive, and in CT* '$a \neq b$' cannot be true in a world unless both a and b exist in that world. By taking distinctness as primitive, the door is closed on Forbes's free counterpart relation. This response, in my view, is an adequate answer to Forbes's objection.

What I find objectionable about this rule is that it permits indistinguishability formulas to replace identity formulas. Clearly, Ramachandran intends his rule to be interpreted in this way. He writes:

> Identity really amounts to indistinguishability here. If two objects have precisely the same counterparts in a world then, in an important sense, they are indistinguishable in that world. For whatever (non-modal) property one has at that world, the other has there as well.[42]

But identity is not reducible or otherwise analysed as indistinguishability even if one accepts some notion of contingent identity, which Ramachandran (along with both Lewis and Forbes) does. Indeed, the possibility of contingent identity is a central

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[41] Forbes 1990, p. 170.
[42] Ramachandran 1990, p. 164 n. 5.

feature of most discussions of counterpart theory. I have not discussed this possibility yet because it has not been relevant to the discussion of necessary existence in counterpart theory, but it has now become relevant. Ramachandran's rule concerning identity (in conjunction with the other translation rules) is meant to rule out the possibility that an object be contingently self-identical while allowing for the possibility of contingent identity. Formally, Ramachandran wants to rule out

$$\Diamond(a \neq a)$$

while allowing for the following conception of contingent identity

$$E!a \wedge E!b \wedge (a = b) \wedge \Diamond(a \neq b)$$

and the following conception of contingent non-identity

$$(a \neq b) \wedge \Diamond(E!a \wedge E!b \wedge (a = b)).$$[43]

But even if one takes the idea of contingent identity and contingent non-identity seriously, identity should not be taken as equivalent to indistinguishability. Consider two qualitatively identical objects a and b existing in world w. It is plausible to suppose that both objects have exactly the same counterparts in an arbitrary world w^*. On Ramachandran's view, a and b are indistinguishable in w^*, and so, the statement '$a = b$' is true in w^*. But what justification would someone have for the judgement that '$a = b$' is true in w^*? On Ramachandran's view, the justification would be along the following lines: a and b have the same counterparts in w^*, so a and b are indistinguishable in w^* and are thus identical in w^*. I question the inference from the

[43] Ramachandran 1990, p. 165.

second to the third step in the argument, that is, from the indistinguishability of *a* and *b* in *w** to the supposed identity of *a* and *b*.[44]

In order to justify the move from the indistinguishability of *a* and *b* to the identity of *a* and *b*, some argument for the notorious identity of indiscernibles is necessary. But Ramachandran gives no such argument. The identity of indiscernibles claim is, however, deeply implausible since there is no reason to suppose that *a* and *b* are identical given the fact that *a* is indiscernible from *b*. Given that the identity of indiscernibles is a controversial claim – and, in my view, an implausible one – some defence of this claim is necessary in order to justify Ramachandran's rule concerning identity. In the absence of such a defence, Ramachandran's account is at best incomplete, and since this rule is essential for giving the results he wants, there is no convincing reason to think that his translation scheme is correct. His case against necessary existence is correspondingly unpersuasive.

SUMMARY

This chapter examined five accounts of counterpart theory: Lewis's original two formulations that include rival translation schemes, Lewis's formulation that denies any such translation scheme, and revisions of CT introduced by Forbes and Ramachandran. I argued that Lewis's first version contains an implausible interpretation on which necessary existence is true, and that Lewis's second version implies a counter-intuitive claim. Where these versions are implicitly motivated by a commitment to modal realism, the third is explicitly motivated by modal realism. While modal realism is sufficient for denying necessary existence, I doubt that many would find this way of denying necessary existence an attractive proposal. Against

[44] My objection in no way involves contingent identity or contingent non-identity so those sympathetic to these claims could object along the lines I give.

Forbes's free counterpart theory, I argued that this theory incorporates an inappropriate conception of existence for modal metaphysics and philosophical logic, a false assumption about the nature of the identity relation, and that there is no persuasive case against necessary existence given Forbes's view of the relation between counterpart theory and quantified modal logic. Finally, I argued against Ramachandran's account which requires identity to be reducible to, or analysable as, indistinguishability. Since this reduction, or analysis, requires the identity of indiscernibles – a controversial claim that I deny and for which Ramachandran proposes no defence – I conclude that no convincing case has been made by any counterpart theorist against the truth of necessary existence, even if one is attracted by the main claims of counterpart theory.

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McMichael on Role Semantics

Alan McMichael puts forward an important semantics of quantified modal logic on which necessary existence is false.[1] This semantics is motivated by his influential objection against the compatibility of Plantinga's semantics for quantified modal logic with actualism, where actualism is the claim that necessarily, everything is actual.[2] McMichael acknowledges that Plantinga's semantics *can* provide truth conditions for modal statements such as the following that are consistent with actualism:

(A) It is possible that there be someone who is not actual.[3]

But by McMichael's lights, Plantinga's semantics *cannot* provide truth conditions for iterated modality statements such as the following that are consistent with actualism:

(B) It is possible that there be a person x who does not exist in the actual world, and who performs some action y, but who might not have performed y.[4]

Faced with this inconsistency, McMichael suggests that Plantinga's semantics for quantified modal logic should be abandoned in favour of an alternative semantics that can provide truth conditions for iterated modality statements that are consistent with actualism. The alternative modal semantics McMichael offers is his role semantics.

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[1] McMichael 1983b.
[2] McMichael 1983a.
[3] McMichael 1983a, p. 53.
[4] McMichael 1983a, p. 54.

This chapter examines McMichael's iterated modality objection to Plantinga's semantics for quantified modal logic. I first present McMichael's axiomatised version of actualism that yields a contradiction when conjoined with Plantinga's truth condition of (B). Then I discuss Michael J. White's objection to McMichael's axiomatisation, namely, that this axiomatisation of actualism yields a contradiction when conjoined with Plantinga's truth condition of (A), thereby implying that it is McMichael's axiomatisation of actualism that is at fault and not necessarily Plantinga's semantics.[5] I then outline McMichael's response to White's objection, namely, his weakening of a particular axiom of actualism, which does not then yield a contradiction when conjoined with (A).[6] Finally, I present McMichael's role semantics, and I argue that this semantics requires an objectionable account of ordinary proper names, demonstratives, and indexicals. I argue also that McMichael's role semantics has counter-intuitive consequences that give good reason to believe that this semantics is an inadequate semantics of quantified modal logic. The upshot of these arguments is that McMichael's role semantics does not threaten the truth of necessary existence.

McMichael's Actualism

McMichael brings together a family of characterisations of actualism under the name 'atomistic actualism'.[7] The particular characterisations coming under this name are Stalnaker's analysis of possible worlds as basic properties,[8] Plantinga's analysis of

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[5] White 1985.
[6] McMichael 1986.
[7] McMichael 1983a, p. 49.
[8] Stalnaker 1976.

possible worlds as maximal states-of-affairs,[9] Robert Adams's analysis of possible worlds as maximal consistent sets of propositions,[10] and W. V. Quine's analysis of possible worlds as interpreted model structures.[11] Though these four views are apparently very different, McMichael regards them as resting on 'the same ontological basis' and this basis 'outweighs all the differences between the views'.[12] The ontological basis of these four views, he thinks, is the claim that properties and relations are fundamental to the analysis of possible worlds, and this common ontological basis, McMichael claims, licences him to 'lump' all these views 'under the same title: atomistic actualism'.[13]

For convenience, McMichael uses Plantinga's account of possible worlds as maximal states-of-affairs. Since McMichael makes extensive use of Plantinga's account, and also because it seems that McMichael's own semantics uses many of the same concepts found in Plantinga's account, I will first sketch Plantinga's account of possible worlds. Plantinga regards worlds as complex states-of-affairs where a state-of-affairs is an abstract entity similar to a proposition. Some states-of-affairs are *Blair's being Prime Minister* and *Gore's being President*. The former state-of-affairs obtains and the latter does not obtain, but both *could* have obtained; that is, it is possible for each state-of-affairs to obtain.

Using the concept of a state-of-affairs possibly obtaining, we can then define a maximal state-of-affairs as a state-of-affairs s such that for any state-of-affairs s', either it is not possible for s to obtain and s' not to obtain, or it is impossible for the conjunction of s and s' to obtain. Introducing further terminology, a maximal state of

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[9] Plantinga 1974, § IV.1.
[10] Adams 1974.
[11] Quine 1968.
[12] McMichael 1983a, p. 52.
[13] McMichael 1983a, p. 52.

affairs s either includes s' or excludes s'. 'Speaking loosely,' McMichael writes, 'a maximal state-of-affairs is one which is completely determinate'. In a footnote to this claim, McMichael goes further: 'This is only loosely correct because a maximal possible state-of-affairs may include a state-of-affairs of something being F without including, for any individual x, the state-of-affairs of x's being F.' I will return to this point below since it is essential for McMichael's account of actualism and his own modal semantics.[14]

We can now define a possible world as a maximal and possible state-of-affairs. Because possible worlds are abstract entities, all of them are necessary existents. While all possible worlds are necessary existents, only one of them obtains, namely, the actual world. That is, the actual world is a distinguished possible world in virtue of the fact that the actual world is the only possible world that obtains.

On Plantinga's account, the truth conditions of modal statements have the following form:[15]

(T1) 'It is possible that A' is true if and only if there is a possible world w such that w includes the state-of-affairs expressed by A.

(T2) 'It is necessary that A' is true if and only if every possible world w includes the state-of-affairs expressed by A.

Now if we take s to be the state-of-affairs *there being someone x who is not actual*, the truth conditions for (A) and (B) are on this semantics:

(A1) There is a possible world w which includes the state-of-affairs s.[16]

(B1) There is a world w which includes the state-of-affairs of there being someone x who does not exist in the actual world, and who performs

[14] McMichael 1983a, p. 51, 51 n.6.
[15] McMichael 1983a, pp. 52-53.
[16] McMichael 1983a, p. 53.

> some action *y*, and there being a world *w'* which includes the state-of-affairs of *x* existing and not performing action *y*.[17]

Though (A1) is compatible with atomistic actualism, McMichael argues, (B1) is not.

An Informal Consideration of the Compatibility of Actualism with (A1) and (B1)

McMichael claims that (A) is 'surely true' and argues that (A1) is compatible with atomistic actualism. McMichael argues, '*s* is a general state-of-affairs; no constituent of it is a merely possible object. Thus [(A1)] does not require that *w* have a merely possible object as a constituent.'[18] The central point of McMichael's argument is that though *w* includes *s*, *w* includes no particular instance of 'the existentially generalized state-of-affairs *s*'.[19] In order to argue that *w* includes no particular instance of *s*, McMichael divides the possibility of *w* including a particular instance of *s* into two cases: first, where *s* involves an actual individual and second, where *s* involves a non-actual individual. If *s* involves an actual individual, then *s* is an impossible state of affairs: *there being someone x, an actual individual, who is not actual.* Because *s* is an impossible state of affairs in this case, *w* cannot include *s*. Now the second case, where *s* involves a non-actual individual, is not a possible case for the actualist because actualists, according to McMichael, 'deny that there are such things'.[20] So McMichael argues that *w* cannot include *s* where *s* involves a non-actual individual. 'Therefore', McMichael concludes, '*w* includes *s*, but not any instance of *s*.'[21] Though this conclusion appears to contradict the maximality of *w*, McMichael

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[17] McMichael 1983a, p. 54.
[18] McMichael 1983a, p. 53.
[19] McMichael 1983a, p. 53.
[20] McMichael 1983a, p. 54.
[21] McMichael 1983a, p. 54.

believes that this appearance is misleading. 'Since the actualist denies the existence of the relevant instances of *s*,' he claims, 'there is nothing that *w* is missing.'[22] As this point is crucial for McMichael's account of actualism, his response to White's objection that (A1) is inconsistent with McMichael's axiomatisation of actualism, and McMichael's own semantics, I will return to this point below. But before considering this issue further, I outline McMichael's argument for the inconsistency of the conjunction of (B1) with actualism.

McMichael claims that (B) 'is surely true'.[23] In order to bolster our intuitions about the plausibility of (B), McMichael gives the following instance of this modal claim: the proposition that John F. Kennedy could have had a second son who becomes a senator, but he might have become an astronaut instead of a senator.[24] This claim is a specific instance of an iterated modal claim because it claims what is possibly possible. A formal representation of this claim would have the following form: $\Diamond(Fx \wedge \Diamond(\neg Fx \wedge Gx))$.

Trouble arises, McMichael recognises, when we consider the compatibility of Plantinga's truth condition for (B), namely, (B1), with atomistic actualism, a metaphysical view some form of which McMichael claims 'is correct'.[25] Recall the truth condition of (B) on Plantinga's modal semantics:

> (B1) There is a world *w* which includes the state-of-affairs of there being someone *x* who does not exist in the actual world, and who performs some action *y*, and there being a world *w'* which includes the state-of-affairs of *x* existing and not performing action *y*.[26]

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[22] McMichael 1983a, p. 54.
[23] McMichael 1983a p. 54.
[24] McMichael 1983a, p. 54.
[25] McMichael 1983a, p. 52.
[26] McMichael 1983a, p. 54.

McMichael's informal argument for the incompatibility of (B1) with atomistic actualism can be summarised in the following way.

> (B1) requires that there be a world that includes the state-of-affairs of *there being someone who does not exist in the actual world.* This requirement is compatible with actualism because this is a purely general state-of-affairs: there need be no particular instance of this state-of-affairs included in *w* in order to satisfy (B1). But it does not seem possible, given actualism that there can be another world *w'*, which (B1) also requires, that includes the state-of-affairs of *x* existing. This is so because *x* is a non-actual individual and, according to actualism, necessarily, there are no non-actual individuals. Therefore, given actualism, there is no state-of-affairs of *x* existing, and because there is no such state-of-affairs, no world can include it. Consequently, Plantinga's truth condition of (B) is incompatible with an intuitively true modal claim, namely, (B), and a plausible metaphysical view, namely, actualism.

Given this dilemma, McMichael argues that Plantinga's semantics for quantified modal logic should be abandoned, and, in its stead, he offers his role semantics. But before proceeding to McMichael's role semantics, I consider a formal account of his iterated modality objection, and a formal argument given by White showing that McMichael's axiomatisation of actualism is not only incompatible with (B) but also incompatible with (A).

McMichael's Axiomatisation of Atomistic Actualism and the Incompatibility of This Axiomatisation with (A1) and (B1)

In order to give a formal account of the incompatibility of (B1) with atomistic actualism, McMichael first gives an axiomatisation of this metaphysical view. He uses '*p*' and '*q*' as variables ranging over states-of-affairs and '*x*' and '*y*' as individual

variables. The inclusion relation between states-of-affairs is formalised as: $\Box(p \supset q)$. McMichael also makes use of the following interpreted symbols:[27]

Wp: p is a possible world

@: the actual world

$E!p$: the state-of-affairs p exists

$E!x$: the individual x exists

Cxq: the individual x is a constituent of state-of-affairs q

McMichael assumes the standard axioms and rules for free quantificational S5, and he adds the following axioms to this system:[28]

(1) Definition of a world: $\Box(Wp \equiv \Diamond p \wedge \forall q(\Box(p \supset q) \vee \Box(p \supset \neg q)))$

(2) Constituency: $\Box\forall q\forall x(\Diamond q \wedge \Box(q \supset E!x) \supset Cxq)$
"Necessarily, if a possible state-of-affairs includes the existence of some individual, then that individual is a constituent of the state-of-affairs." It is interesting to note, on the other hand, that a state-of-affairs can *exclude* the existence of an individual which is *not* a constituent of it. For example, the state-of-affairs q = *there is exactly one individual and it is an electron* excludes the existence of x = Socrates. We have $\Diamond q$ (I think) and we have $\Box(q \supset \neg E!x)$, but we do not have Cxq)

(3) Actuality of constituents: $\Box\forall q\forall x(Cxq \supset \Box(@ \supset E!x))$
"Necessarily, any constituent of a state-of-affairs must be an actually existing thing." This axiom can be regarded as a consequence of two others:

(3a) Actuality of all possible constituents of an actual state-of-affairs:
$\forall q\Box\forall x(Cxq \supset \Box(@ \supset E!x))$

(3b) Necessary existence of states-of-affairs: $\Box E$—, where the blank is filled by any states-of-affairs term. This validates the Barcan formula and its converse for states-of-affairs:
$\forall p\Box(\ldots p \ldots) \equiv \Box\forall p(\ldots p \ldots)$

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[27] The interpretation of these symbols is quoted from McMichael 1983a, p. 64.
[28] These axioms and the informal characterisations and remarks are quoted from McMichael 1983a, pp. 64-65.

Claims (1), (2), and (3) complete McMichael's axiomatisation of actualism. He then gives the following formal representation of (B1), which can be obtained by using the above symbolism and adding the relation *Pxy* which abbreviates '*x* performs action *y*':

(B1′) $\exists p(Wp \wedge \Box(p \supset \exists x \exists y(\neg\Box(@ \supset E!x) \wedge Pxy \wedge \exists q(Wq \wedge \Box(q \supset E!x \wedge \neg Pxy)))))$.[29]

I will not rehearse McMichael's derivation of the contradiction from (1), (2), (3), and (B1′) as it is rather lengthy and it is not more illuminating than McMichael's informal argument concerning this incompatibility.

What is illuminating is that using this axiomatisation of atomistic actualism, White obtains a contradiction from (1), (2), (3), and the following formal representation of (A1):

(A1′) $\exists p(Wp \wedge \Box(p \supset \exists x \exists y(\neg\Box(@ \supset E!x) \wedge Pxy)))$.[30]

Again, I will not present the formal derivation of a contradiction because it is also lengthy. Instead, I will give an informal argument for the incompatibility of McMichael's axiomatisation of atomistic actualism with (A1). If (A1) is true, then there is a possible world *p* that includes the state-of-affairs of there existing a non-actual individual. Suppose that *p* obtains. If *p* obtains, then there exists a non-actual individual, *x*. Also, if *p* obtains, then there exists the state-of-affairs of *x*'s existing. Because *p* is maximal (claim (1)), *p* either includes or excludes the state-of-affairs of *x*'s existing. If *p* excludes the state-of-affairs of *x*'s existing, then *x* both exists and does not exist, which is absurd. Thus, *p* includes the state-of-affairs of *x*'s existing. If *p* includes the state-of-affairs of *x*'s existing, then *x* is a constituent of *p* (claim (2)). If

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[29] McMichael 1983a, p. 65.
[30] White 1985, p. 185.

x is a constituent of p, then x is actual (claim (3)). But by supposition, x is non-actual. So we have a contradiction. Therefore, (A1) is incompatible with (1), (2), and (3).

Because McMichael's axiomatisation of atomistic actualism is incompatible with both (A1) and (B1), it does not appear as if his iterated modality objection has the force he thought it does. McMichael's response to White's argument is to revise his axiomatisation of atomistic actualism in such a way that it is compatible with (A1) and incompatible with (B1). I argue below that this revision creates more difficulties for McMichael.

McMichael's Revised Axiomatisation of Actualism

McMichael's response to White's argument is to weaken claim (1), his maximality claim concerning possible worlds. In White's argument, McMichael denies that p must either include or exclude x's existing.[31] McMichael repeats his contention that an atomistic actualist can accept that a world include a purely general state-of-affairs of a non-actual individual's existing while denying that the world include any particular instance of this general state-of-affairs. He argues that this contention can be established by 'maintaining that worlds are maximal but not *necessarily* maximal'.[32] McMichael's idea is that for any actually existing states-of-affairs, all possible worlds either include or exclude these states-of-affairs; however, if a world p were to obtain, then there would be other non-actual states-of-affairs. 'Maximality', according to McMichael, 'does *not* require that p include or exclude each one of those.'[33] Applying this reasoning to White's argument, because the state-of-affairs of x's existing exists only given a counterfactual assumption that p obtains, p is not

[31] McMichael 1986, p. 284.
[32] McMichael 1986, p. 284 (his emphasis).
[33] McMichael 1986, p. 284 (his emphasis).

required to either include or exclude this state-of-affairs in order to satisfy maximality.

McMichael incorporates this reasoning into a revised set of axioms for 'the intermediate actualist position':[34]

(1*) Possibility: $\Box\forall p(Wp \supset \Diamond p)$
"Necessarily, every world is possible."

(2*) Maximality: $\forall p\forall q(Wp \supset (\Box(p \supset q) \vee \Box(p \supset \neg q)))$
"Given any world and any actually existing state-of-affairs, the world either includes that state of affairs or excludes it."

(3*) Constituency: $\Box\forall q\forall x(\Diamond q \wedge \Box(q \supset E!x) \supset Cxq)$
"Necessarily, if a state-of-affairs is possible and if it includes the state-of-affairs of x's existing, for some x, then x is a constituent of that state-of-affairs."

(4*) Actuality of all possible constituents of an actual state-of-affairs:
$\forall q\Box\forall x(Cxq \supset \Box(@ \supset E!x))$
"Any actually existing state-of-affairs is such that necessarily, if an individual x is a constituent of it, then the actual world includes the state-of-affairs of x's existing."

(5*) Exportability and importability of world-quantifiers:
$\Diamond\exists q(Wq \wedge \_\_\_) \equiv \exists q\Diamond(Wq \wedge \_\_\_)$, where ___ is any formula
"It is possible for there to be a world that has property ___ if and only if there actually is a world which possibly has the property ___."

The weakening of claim (2) to (2*) blocks the contradiction White derives. This is so because (2*) is not preceded by a necessity operator and cannot be assumed to be true if world p obtains. Thus, (A1) is compatible with (1*) – (5*).

However, (B1) is incompatible with (1*) – (5*). McMichael begins proving a contradiction from this conjunction by claiming the following formula is entailed (B):[35]

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[34] The following axioms and informal characterisations are quoted from McMichael 1986, p. 285.
[35] This formal argument and the informal paraphrase below (6) are quoted from McMichael 1986, p. 286.

(6) $\Diamond\exists q(Wq \wedge \exists x(Cxq \wedge \neg\Box(@ \supset E!x)))$.
"It is possible for there to be a world that has a nonactual constituent."

By the exportability axiom and instantiating (6), we obtain:

(7) $E!q \wedge Wq \wedge \Diamond\exists x(Cxq \wedge \neg\Box(@ \supset E!x))$.

But from (4*) we have the following,

(8) $\Box\forall x(Cxq \supset \Box(@ \supset E!x))$,

which contradicts the third conjunct of (7). Thus, McMichael argues, (1*) – (5*) is incompatible with (B1).

Before concluding that there is such an incompatibility, I question whether (6) is a consequence of (B). It is not obvious that this so. (B) itself does not contain the concept of constituency so (6) cannot be a formal consequence of (B) only, but, rather, (6) must be entailed by (B) plus some further principles. These further principles might be plausibly denied by someone who accepts (B) so accepting (6) seems to be in no way a rationally non-discretionary judgement for those who accept (B). Therefore, it is not at all clear that without some further derivation of (6) from (B), the conjunction of (1*) – (5*) is incompatible with (B).

McMichael acknowledges that the view axiomatised by (1*) – (5*) may not be a particularly appealing view. He argues that (5*) 'is needed to ensure that modal semantics can be done in terms of maximal possible states-of-affairs (i.e. worlds) that exist in the actual world', and, generally speaking, the reason for accepting (5*) is the belief that states-of-affairs are necessary existents.[36] However, this belief 'does seem

[36] McMichael 1986, p. 285.

to be responsible for the sort of contradiction White derives from (A)'.[37] In order to see why this belief may well be responsible for the contradiction, recall McMichael's strategy for blocking the contradiction: 'if a world such as *p* were to obtain, then *there would be other states-of-affairs that do not exist actually*', and the principle of maximality does not require that *p* either include or exclude these states-of-affairs.[38] So in order to block the contradiction, not only must maximality be weakened, but in addition the usual ground for asserting (5*) must be abandoned. McMichael emphasises that he does not claim that this position is at all attractive 'but only that it is a logically coherent line of thought'.[39]

I think that all would agree that the position axiomatised by (1*) – (5*) is a deeply unattractive position. This is ironic since it is McMichael's stated intention to present a dilemma: 'we must either reject atomistic actualism, even though . . . the alternatives are not attractive, or reject the standard semantics despite its practical successes.'[40] And he resolves the dilemma in the following way:

> My conclusion is that atomistic actualism is in conflict with standard possible world semantics, on account of the problem of iterated modalities. If we retain atomistic actualism, which I have argued is the most reasonable conception of possible worlds, then we must reject standard semantics, as represented by principles ((T1)) and ((T2)). I see no other way out.[41]

So the structure of McMichael's argument is:

(a) the iterated modality objection in and of itself shows that atomistic actualism is incompatible with Plantinga's semantics for quantified modal logic;

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[37] McMichael 1986, p. 285.
[38] McMichael 1986, p. 284 (my emphasis).
[39] McMichael 1986, p. 285.
[40] McMichael 1983a, p. 49. McMichael calls Plantinga's semantics 'the standard semantics' of quantified modal logic.
[41] McMichael 1983a, p. 62.

(b) atomistic actualism should be retained as it is the most attractive view of possible worlds;

(c) therefore, Plantinga's semantics for quantified modal logic should be abandoned.

That the situation in which McMichael now finds himself is indeed ironic may be appreciated from the following reasoning:

(i) In order for the iterated modality objection to be the crucial objection demonstrating that atomistic actualism is *incompatible* with Plantinga's semantics for quantified modal logic, McMichael has to show that, given background assumptions, atomistic actualism is *compatible* with Plantinga's semantics given the assumed truth of claim (A).

(ii) In order to make atomistic actualism *compatible* with Plantinga's semantics given the assumed truth of (A) while at the same time making atomistic actualism *incompatible* with Plantinga's semantics given the assumed truth of iterated modality statements, such as claim (B), McMichael has to make atomistic actualism an entirely unattractive metaphysical position axiomatised by (1*) – (5*);

(iii) As a result, the iterated modality objection in and of itself shows that atomistic actualism is incompatible with Plantinga's semantics for quantified modal logic only if atomistic actualism is unattractive;

(iv) Therefore, in the above argument summarising McMichael's dilemma, McMichael's first premise (a) is true only if his second premise (b) is false.

So it seems that McMichael's argument as it stands, and as he has stated it, is unsound.

But this is not really the end of the story. As I understand his work, McMichael does not actually want to retain atomistic actualism's conception of possible worlds. So the dilemma just stated is not really what is at issue. McMichael develops an entirely new conception of possible worlds, and it is this conception that is meant to be indicated by the iterated modality objection. Commenting on the unattractiveness of atomistic actualism as he axiomatised it in response to White,

McMichael writes, 'I by no means think that actualism is an untenable philosophical position, only that it is incompatible with an orthodox conception of possible worlds.'[42] What I think McMichael is arguing for is not a simple dilemma between atomistic actualism and Plantinga's semantics for quantified modal logic, but rather a new conception of actualism that involves a new understanding of possible worlds and a new semantics to go along with this new understanding. It is to this new understanding of possible worlds that I turn now.

CONTINGENT INDIVIDUALS, CONSTITUTION, AND NECESSARILY EXISTENT POSSIBLE WORLDS

To set the stage for McMichael's new conception of possible worlds, I should set out what I believe to be a plausible understanding of the development of differing accounts of abstract possible worlds.[43] The development of differing accounts of abstract possible worlds can be seen as a response to the following set of at least *prima facie* plausible claims: there are contingent individuals; these contingent individuals are constituents of possible worlds; if an individual is a constituent of a possible world, then that individual exists at that world; and possible worlds are necessary existents. I have already discussed at length the apparent plausibility of there being contingent individuals previously so I will not repeat those comments here, but the remaining three claims deserve some comment.

The claim that individuals are constituents of possible worlds, where for convenience we understand a possible world as a maximal state-of-affairs, gains plausibility from the idea that when we consider modal judgements about, say,

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[42] McMichael 1986, p. 287.
[43] Lewis's concrete worlds are not relevant here.

Socrates, we are concerned with what happens to *Socrates* in alternative possible worlds. That is, we are not concerned with some abstract surrogate standing in for Socrates in these possible situations; rather, we are concerned with Socrates. This idea is similar to Kripke's criticism of Lewis's counterpart theory: on Lewis's theory, when we consider modal judgements – such as the claim that Humphrey might have won the election – what we are doing is judging that some counterpart of Humphrey, an individual more similar to Humphrey than any other individual in some possible world, wins the election in this possible world, and not judging that Humphrey himself wins the election in this possible world. 'Probably, however,' Kripke writes, 'Humphrey could not care less whether someone else, no matter how much resembling him, would have been victorious in another possible world.'[44] Thus, the claim that individuals, the very same individuals who figure in our modal judgements, are constituents of possible worlds appears to be a very plausible claim.

The claim that if an individual is a constituent a possible world, then that individual exists at that world gains its plausibility from the claim Plantinga has termed 'existentialism'. I have previously argued for this claim, and I will not repeat the arguments here but only draw out the connection between existentialism and the present claim. If possible worlds are some abstract complex like maximal states-of-affairs, or maximal properties, or maximal propositions, then the existentialist claim, assuming it is true of propositions, would be true of all possible worlds of these kinds. Maximal states-of-affairs and maximal properties are proposition-like abstract complexes, and maximal propositions just are propositions. So if existentialism is true, then so is the claim that if an individual is a constituent of a possible world, then that individual exists.

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[44] Kripke 1980, p. 344.

Finally, the third claim is that possible worlds are necessary existents. The plausibility of the claim comes from two main sources: the first is that possible worlds are abstract and abstract objects are necessary existents, and the second is that allowing for contingently existing worlds will not allow for a purely extensional semantics for modal logic. Concerning the first source, it is thought that abstract objects do not depend on the vagaries of this or any other world; if this is so, then abstract objects necessarily exist. Because possible worlds, as atomistic actualists conceive of them, are abstract objects, they necessarily exist. It is clear that when we consider the claims mentioned above, (namely, that some individuals are contingent existents, that individuals are constituents of possible worlds, that if an individual is a constituent of a possible world, then that individual exists in the world, and that possible worlds are necessary existents), they form an inconsistent set, especially when our attention is brought to this source of the plausibility of the claim that possible worlds are necessary existents. But before discussing this inconsistent set further, I briefly sketch a technical benefit of building into our theory of possible worlds the claim that possible worlds are necessary existents. As McMichael has pointed out, if we allow for contingently existing states-of-affairs, then any world theory we derive 'will contain ineliminable occurrences of the modal operators, with their attendant opaque context, and so it will not be truly extensional'.[45] Since extensional theories of modality have met with great success, the claim that possible worlds are necessary existents should arguably have an essential place in our theory of possible worlds.

Now if we consider these claims as a set, it is obvious that this set is inconsistent, since there would have to be individuals that are both necessary and

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[45] McMichael 1983a, p. 66.

contingent, which is a contradiction. So one of these plausible claims must be abandoned. I suggest that some of the developments of the theory of possible worlds could be interpreted relative to this inconsistency. As examples, I give Plantinga's theory of possible worlds and Fine's theory as representative responses to this inconsistency before giving McMichael's theory of possible worlds, which can also be seen in this light.

Plantinga thinks of possible worlds as maximal states-of-affairs that are necessarily existent. As such, he embraces the last claim. In order to secure necessarily existent worlds, Plantinga has to make his worlds independent of the contingencies of this or any other world. Since he also thinks that there are contingently existing individuals, like you and me (embracing the first claim), he cannot let individuals themselves be constituents of possible worlds. Plantinga's solution is to claim that essences of individuals are constituents of possible worlds, and the contingent existence of an individual is expressed by the claim that that individual's essence need not have been exemplified. For example, to say that I might not have existed, on Plantinga's view, is to say that my essence might not have been exemplified. This example leads to Plantinga's position concerning the claim that if an individual is a constituent of a possible world, then that individual exists. Since individuals are not constituents of possible worlds for Plantinga, this conditional does not have great importance; but if we translate it into the language of 'individual essence' and 'exemplification', it does have importance. The translation is that if an individual essence is a constituent of a possible world, then that essence is exemplified. It is this claim that Plantinga explicitly denies, as he is bound to do, because he thinks that there are contingently existing individuals, and this means that there are unexemplified essences that are constituents of possible worlds.

While Plantinga's theory of possible worlds seems rooted most in the claims that there are contingent individuals and possible worlds are necessary existents, Kit Fine's theory of possible worlds is rooted in the claims that there are contingent individuals, these individuals are constituents of possible worlds, and if an individual is a constituent of a possible world, then that individual exists. These claims lead Fine to deny the claim that possible worlds are necessary existents. Instead, Fine develops a theory of contingently existing states-of-affairs, and, consequently, his modal theory is non-extensional.[46]

In addition to the non-extensionality engendered by such a world theory, Peter Lopston has pointed out that there is a certain uncompletability with regard to possible worlds if the following two claims are embraced: that there are contingently existing individuals and that if an individual is a constituent of a proposition, then that individual exists. If these two claims are true, then it follows that there are contingently existing propositions. Now consider a world that contains such a contingent proposition, where this proposition does not exist in the actual world. Lopston then argues:

> If some possible worlds contain propositions that don't exist in our world – the actual world – then uncountably many possible worlds could not, even in principle, be fully described or specified in our world – which is to say, could not be described or specified.[47]

This means, according to Lopston, that 'there is an indeterminacy or uncompletability in applications of the concept (of a possible world) except for a very special class of cases', namely, where worlds contain only necessarily existing propositions or propositions that also exist in the actual world.[48]

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[46] Fine 1977.
[47] Lopston 1980a.
[48] Lopston 1980a, p. 183.

Though Lopston's argument is set in terms of propositions, the same argument can be run for states-of-affairs, and it seems that the uncompletability engendered by contingently existing propositions is also engendered by contingently existing states-of-affairs. So an uncompleteability concerning possible worlds appears to be inescapable for a world theory such as Fine's that admits contingent states-of-affairs. He has to admit that there could be possible worlds such that we cannot fully describe them. But this uncompletability does not imply any sort of indeterminacy because the uncompletability is a limitation on our capacity for description imposed by the world, and this limitation does not mean that possible worlds are in any way indeterminate.

Fine may object on actualist grounds that the situation Lopston describes involves a non-actual individual being a constituent of a proposition, or state-of-affairs, and this is not possible because for actualists, there are not, nor could there be, such non-actual individuals. As a result, the situation described by Lopston is ruled out by actualism, and so such uncompletability could never be a feature of possible worlds. I think that this reasoning may be self-defeating for Fine's position. If actual individuals are constituents of all possible states-of-affairs, then it seems this position validates the Barcan formula thereby undercutting the actualist motivation for the position. The argument for this claim is the following. If the state-of-affairs corresponding to the formula $\Diamond\exists x\varphi(x)$ is constituted by only actual individuals, then there is an actual individual who is such that it could have satisfied the formula $\varphi(x)$. If this is so, then the following formula is true: $\exists x\Diamond\varphi(x)$. Therefore, the conditional $\Diamond\exists x\varphi(x) \supset \exists x\Diamond\varphi(x)$, which is the Barcan formula, is true. Since the Barcan formula is characteristically a possibilist claim, Fine cannot adopt this response without contradicting actualism. In short, I do not see how Fine's theory can avoid the uncompletability of possible worlds.

Finally, let me turn to McMichael's theory of possible worlds. This theory sets the stage for McMichael's role semantics and so deserves some attention. McMichael's theory is similar to Plantinga's. But instead of using essences as surrogates for individuals, McMichael uses roles as constituents of possible worlds. Though I will examine McMichael's account of roles much more closely when I consider his role semantics, I will simply state here McMichael's definition of a role. 'A role', he says, 'is a maximal possible qualitative *property*.'[49] Using roles instead of individuals allows McMichael to characterise possible worlds as 'purely *qualitative* entities, entities which do not have individuals as constituents. That is, possible worlds are not maximal possible states-of-affairs, but maximal possible *qualitative* states-of-affairs.'[50] McMichael's worlds are what Plantinga has termed 'Ramsey worlds'.[51] A Ramsey world can be constructed using the following technique. Take any maximal possible state-of-affairs *s*. Conjoin all the propositions that are true in *s*. At each place where a particular individual is mentioned, apply the rule of existential generalisation. The resulting existentially generalised proposition is called a Ramsey proposition. A Ramsey world is the state-of-affairs of a Ramsey proposition's being true. Accordingly, McMichael abandons the view that individuals are constituents of possible worlds. McMichael writes:

> Instead of saying that what an individual might have done is what *he* does in some possible world, let us say that what an individual might have done is what *any such* individual does in some possible world, so that we emphasize not the individuals themselves, but rather the *roles* they play. To determine what Socrates might have done, we don't look for worlds in which he appears, but instead, we look for roles, in possible worlds, which are accessible to Socrates' actual role. I[f] one of these roles includes a certain property, then that property is one Socrates could have had; otherwise, it is not.[52]

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[49] McMichael 1983b, p. 76 (his emphasis).
[50] McMichael 1983b, p. 76 (his emphasis).
[51] Plantinga 1974, p. 91.
[52] McMichael 1983b, p. 75 (his emphasis).

We can see that McMichael's account combines important features of Lewis's and Plantinga's theories. McMichael's accessibility relation between roles functions in a similar way to Lewis's counterpart relation between individuals. For example, on Lewis's view, the sentence 'Necessarily, Socrates is human' expresses the proposition that in all possible worlds, all of Socrates' counterparts are human, and on McMichael's view, this sentence expresses the proposition that in all possible worlds, all the roles accessible to Socrates include the property of being human. Turning to Plantinga's theory, just as Plantinga denies the view that individuals are constituents of possible worlds, so does McMichael. This denial is important because it allows McMichael to accept the claims that there are contingent individuals,[53] that if an individual is a constituent of a possible world, then the individual exists at that world,[54] and that possible worlds are necessary existents.[55]

Because McMichael can accept that possible worlds are necessary existents, McMichael can successfully avoid any sort of uncompletability in possible worlds that is characteristic of Fine's theory of worlds. However, McMichael allows for some unsaturatedness due to his weakening of maximality: 'a maximal state-of-affairs may include a state-of-affairs of something being F without including, for any individual x, the state-of-affairs of x's being F'.[56] It seems that McMichael weakens this view in order to make the iterated modality objection act as the crucial objection to Plantinga's semantics.

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[53] McMichael considers his account of contingently existing individuals in his role semantics in McMichael 1983b, pp. 77-78.
[54] McMichael finds the existence of unexemplified haecceities incredible. McMichael 1983a, p. 60.
[55] McMichael consistently maintains the validity of the Barcan formula and its converse for states-of-affairs. See axiom (3b) and (5*).
[56] McMichael 1983a, p. 51 n.6.

A similar objection to Plantinga's theory of modality applies to McMichael's theory. Consider the sentence, 'Necessarily Socrates is human'. Plantinga argues that this sentence expresses the proposition that for all possible worlds *w*, if *w* had been actual then the individual essence of Socrates and humanity would have been co-exemplified. Generally, modal sentences containing ordinary proper names, demonstratives, or indexicals, on Plantinga's view, express propositions that involve the individual essence of the referent of the name, demonstrative, or indexical. In contrast, on McMichael's view, sentences of this type express propositions that involve roles that are accessible to the referent of the name, demonstrative, or indexical. This view of modal sentences is required if possible worlds are to be purely qualitative and McMichael's role semantics is to be a metaphysically adequate semantics of quantified modal logic. However, just as Plantinga's account is objectionable because it takes ordinary proper names, demonstratives, and indexicals to refer to individual essences, so McMichael's account is objectionable because it takes singular terms of this type to refer to roles. If we have learnt anything in the semantics of ordinary proper names, indexicals, and demonstratives, we have learnt that these singular terms refer to *individuals*.

McMichael may respond that this objection does not have much force because it is just a situation we have to live with: the counter-intuitiveness of McMichael's account of modal sentences is a price worth paying because it is more counter-intuitive to deny any of the other claims that require it, namely, that there are contingent individuals, that if an individual is a constituent of a possible world (or any other abstract complex), that individual exists at that world (or with respect to that complex), and that possible worlds are necessary existents. A structurally similar response is also available to Plantinga if one objects along the same lines as the above

objection to McMichael. Plantinga can respond that this is a price worth paying because denying the other claims that require it is too counter-intuitive and his is the most plausible account of what you get when you deny the claims he denies. Finally, the response is also available to Fine if one objects that his account does not allow for extensional modal semantics and engenders uncompletability in possible worlds. He can respond that it is intuitively more satisfying to deny the claim that possible worlds are necessary existents, and his account is the best version of what you get when you deny the claims he denies.

These possible responses show that, by and large, the theoretical virtues of one position are the theoretical vices of the others, and vice versa. We can see this by means of the following charts.

	Affirms	Denies
Plantinga's Theory	There are contingent existents. Possible worlds are necessary existents.	Individuals are constituents of possible worlds.
Fine's Theory	There are contingent existents. Individuals are constituents of possible worlds.	Possible worlds are necessary existents.
McMichael's Theory	There are contingent existents. Possible worlds are necessary existents.	Individuals are constituents of possible worlds.

	Benefits	Costs
Plantinga's Theory	It allows for an extensional semantics of quantified modal logic. It does not allow for an uncompletability in possible worlds.	It denies the intuitive claim that our modal judgements are literally about individuals.
Fine's Theory	It affirms the intuitive claim that our modal judgements are literally about individuals.	It does not allow for an extensional semantics of quantified modal logic. It allows for an uncompletability in possible worlds.
McMichael's Theory	It allows for an extensional semantics of quantified modal logic. It does not allow for an uncompletability in possible worlds.	It denies the intuitive claim that our modal judgements are literally about individuals.

I think that the structure of the dilemma posed by this situation, specifically, choosing which theory is the least implausible where the virtues of one are the vices of the other and vice versa, should encourage us to examine the assumption that is forcing the choice between these theories. This assumption is that there are contingent individuals. If we deny this assumption, then we can accept the other claims, all of which have strong considerations in favour of them. In my view, this is the best resolution of the dilemma. To make my view more plausible, I argue against McMichael's particular account.

A Brief, Informal Characterisation of McMichael's Role Semantics

McMichael's central idea is to use roles as surrogates for individuals as constituents of possible worlds, which are purely qualitative maximal states of affairs. Roles are maximal possible qualitative properties, and these properties include not only the intrinsic properties of an individual, such as being human, but also the individual's relational properties, such as being descended from a US president. Since roles are purely qualitative, properties that mention individuals are not included in roles, such as the property of being descended from Abe Lincoln. Just as we can understand possible worlds as constituted by Ramsey propositions, we can similarly understand roles as constituted by Ramsey propositions. 'A role', McMichael writes, 'is the result of replacing one of the wide-scope existential quantifiers of a Ramsey proposition p with the corresponding abstraction operator.'[57] While a Ramsey proposition has the following form, 'there is an x such that . . .', the corresponding role to this Ramsey proposition has the form: 'the property of being an x such that . . .'. McMichael notes that 'a role "encodes" an entire Ramsey world, in the sense that if something were to have that role, then a certain Ramsey world would obtain'.[58] From this observation, McMichael introduces the following terminology: a role *includes* a Ramsey world.

From his characterisation of unary roles, McMichael generalises his account to include roles of two or more places. A binary role, on this account, is a maximal possible qualitative binary relation, and, in general, an i-ary role is a maximal possible qualitative i-nary relation.[59] McMichael then extends the concept of inclusion to these roles of two or more places in the following way: 'An i-ary role R includes a j-

[57] McMichael 1983b, p. 76.
[58] McMichael 1983b, p. 76.
[59] McMichael 1983b, p. 76.

ary role s ($j \leq i$) just in case it is necessarily true that if any individuals $x_1 \ldots x_i$ exemplify role R, then the first j individuals $x_1 \ldots x_j$ exemplify s.' This generalisation completes McMichael's characterisation of the general idea behind his role semantics.

He then offers the following examples. Consider the sentence, 'It is possible that Socrates is foolish' ($\Diamond Fs$). On McMichael's semantics this sentence is true just in case there is a unary role that is both accessible to Socrates' actual role and includes the property of being foolish. Now consider the iterated modal sentence, 'It is possible that something is a 300-pound canary and it is possible that it is a 600-pound canary' ($\Diamond \exists x(Tx \wedge \Diamond Sx)$). This sentence is true, on McMichael's account, just in case there is a Ramsey world w included by some unary role R^1, and R^1 includes the property of being a 300-pound canary, and there is a unary role S^1 that is accessible to R^1 and S^1 includes being a 600-pound canary. McMichael notes that in this truth condition, 'there is no reference to individuals at all, actual or non-actual'.[60] McMichael gives further examples, but these two should suffice for giving the general idea behind role semantics.

McMichael notes several consequences of his semantics. First, he observes that the Barcan formula

(BF) $\Diamond \exists x \varphi \supset \exists x \Diamond \varphi$

is not valid in role semantics because there are interpretations where the domain of actual individuals is empty, such that the formula $\exists x \Diamond E!x$ is false, while the formula $\Diamond \exists x E!x$ is true. Also, the converse Barcan formula

(BFC) $\exists x \Diamond \varphi \supset \Diamond \exists x \varphi$

[60] McMichael 1983b, p. 77.

is not valid in role semantics because there are some interpretations where the formula $\exists x \Diamond \neg E!x$ is true but the formula $\Diamond \exists x \neg E!x$ is true in no interpretation. However, McMichael points out that there are some versions of the converse Barcan formula that are valid in role semantics:

(BFC*) $\exists x \Diamond F^1x \supset \Diamond \exists x F^1x$, where F^1x is atomic

(BFC**) $\exists x \Diamond (E!x \wedge \varphi) \supset \Diamond \exists x \varphi$.

Though some formulas of interest are valid in role semantics, the formula that has most concerned us, necessary existence, is invalid in this semantics. The invalidity of this formula is clear from the existence of interpretations in which the domain of actual individuals is empty. In addition to invalidating necessary existence, role semantics also invalidates the Browerian formula

(Br) $\varphi \supset \Box \Diamond \varphi$.

McMichael claims that the invalidity of this formula is evident when we take the sentence 'Socrates exists' as a substitution instance of φ. McMichael argues that though the formula $E!a$ is true, where 'a' denotes Socrates, the formula $\Box \Diamond E!a$, is not true. This is so because:

> Since there is a possible world where Socrates does not exist, and since there Socrates is not such that he could exist (there he is not such that anything), it is not necessarily true that Socrates could exist, that is, $\Box \Diamond E!a$ is false. This consequence may seem bizarre, but I don't think an actualist should try to evade it. There are no nonexistent possible individuals, according to actualism. But shouldn't the actualist take this to be a necessary truth, that there indeed *could* not have been any nonexistent possible individuals? If so, it follows that had Socrates not existed, he would not have been such that he could exist – else he would have been a nonexistent possible.[61]

[61] McMichael 1983b, p. 95 (his emphasis).

The failure of the Browerian formula has a dramatic consequence, as McMichael acknowledges. Given McMichael's characterisation of the identity relation, where *a* is identical to *a* only if *a* exists, if *a* is a contingent individual in some interpretation, then the formula $\Diamond a \neq a$ is true in that interpretation. However, this consequence does not tell specifically against McMichael's role semantics because it holds on all quantified modal logics that incorporate the requirement that *a* is identical to *a* only if *a* exists. McMichael recognises that Fine has posited a distinction between what he terms 'weak identity', denoted by '=*', and 'strong identity', denoted by '='. In systems that include S5, he defines weak identity in terms of strong identity in the following way:

$$a =^* a = _{df.} \Diamond a = a.^{62}$$

In such systems, there are no interpretations on which $\Diamond a \neq^* a$ because *a* need not exist for the formula $a = a$ to be true. But since the Brouwerian formula is false in role semantics, McMichael acknowledges that 'if '*a*' denotes Socrates, then not only is $\Diamond a \neq a$ true, but also $\Diamond\Box a \neq a$, which is equivalent to '$\Diamond a \neq^* a$'.[63]

McMichael notes these consequences of his role semantics himself, so I take it that he believes them to be consistent with an adequate modal metaphysics. However, such consistency is not immediately apparent. This is so because the adoption of this metaphysics would require the abandonment of the necessity of identity, a claim that since Kripke's work has served as foundational for modal metaphysics. The claim that I might be distinct from myself appears to be absurd and any semantics that validates such a claim must explain away the counter-intuitiveness of this result.

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[62] Fine 1977, pp. 133-134.
[63] McMichael 1983b, p. 96.

McMichael does not do this; so his account at best stands in need of further motivation.

SUMMARY

In this chapter, I presented McMichael's iterated modality objection and argued that if the iterated modality objection in and of itself is meant to force a choice between Plantinga's semantics for quantified modal logic and atomistic actualism, then atomistic actualism is a fairly unattractive alternative. This result makes McMichael's central argument unsound, where his central argument is: the iterated modality objection in and of itself shows that atomistic actualism is incompatible with Plantinga's semantics for quantified modal logic; atomistic actualism is an attractive, and the most attractive, theory of possible worlds, and so should be retained; therefore, Plantinga's semantics for quantified modal logic should be abandoned. I argued that the first premise of this argument is true just in case the second is false. Thus McMichael's argument does not compel us to abandon Plantinga's semantics for quantified modal logic at all.

But I do not think that this was all McMichael was aiming for. McMichael, as I understand him, is giving a new form of actualism and a new semantics to go along with it. I presented his new form of actualism – specifically, his new theory of possible worlds – in the context of Fine's theory and Plantinga's theory to demonstrate that these theories can be seen as a reaction to an inconsistency in a set of four plausible claims. I argued that these theories rejected the wrong claims: instead of the ones they respectively denied, they should have denied that there are contingent individuals.

Finally, I presented the general idea behind McMichael's role semantics in a brief and informal manner. I outlined some of the consequences of this semantics including the falsification of necessary existence. In addition to falsifying this claim, McMichael's role semantics also falsifies the Brouwerian formula. This has the effect of validating the formula $\Diamond a \neq^* a$ in addition to the formula $\Diamond a \neq a$. This counter-intuitive consequence tells against the metaphysical adequacy of McMichael's role semantics. Thus, this semantics does not threaten the truth of necessary existence.

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CONCLUSION

I began this work by arguing that the only appropriate understanding of the existence predicate for the purposes of philosophical logic is the sense governed by the Existence Principle. I answered various objections to this principle, and I noted that on this understanding of 'exists', necessary existence is not nearly as counter-intuitive as it is on other understandings of 'exists'.

I then considered the most prominent objections to necessary existence, and among my responses to these objections, I developed a metaphysics of contingently concrete individuals that makes use of the logical sense of 'exists'. I then discussed what would be a persuasive case for necessary existence, and I argued that such a case must include an argument from informal, metaphysical considerations.

Following this discussion, I defended such an argument making essential use of the logical sense of the existence predicate. Following this argument, I gave three further arguments for necessary existence from formal, logical considerations. These four arguments embody fundamental features of our metaphysical thought and essential principles of reasoning.

I defended these arguments from important objections, both metaphysical and formal. These objections included objections from Kripke's account of the syntax and semantics of quantified modal logic, free quantified modal logic, Prior's theory of modality, Plantinga's account of modality *de re* and his essentialist interpretation of quantified modal logic, Lewis's counterpart theory and its development by Forbes and

Ramachandran, and McMichael's role semantics. I argued that none of these objections are successful. I therefore conclude that necessary existence is true.

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