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The Varieties of Modality:  
Kantian Prospects for A Relativist Account

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Thesis for Doctor of Letters

“Cotutelle” between the University of Geneva  
and the University of Sheffield

Department of Philosophy

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# Abstract

The aim of this thesis is to present and motivate the relative modality view, whereby at least the non-logical alethic kinds of modality are mere relative forms of logical modality. The first chapter is devoted to presenting the relative modality view in general, providing a correct formulation, and considering some arguments for and against. The next chapter considers the particular challenges raised for the view by some essentialists. The third chapter turns to look at logical modality, the bedrock of the relative modality view, and presents an example of an account of logical necessity which suits it well. I argue that logical necessity is that necessity implicated in a deductively valid argument, and hence that its source is to be found in an account of the laws of logic. I argue that the laws of logic are constitutive-normative laws of thought. The fourth chapter takes a more historical turn. Here I argue that Kant can be understood as advocating a relative modality view, in particular for what he calls “real modality”. In the fifth and final chapter I will draw on the conclusions of the preceding chapters to present a Kantian relative account of metaphysical necessity. Metaphysical necessity is that which follows, as a matter of logical necessity, from conditions on our having any experience of an objective world. I argue why this Kant-inspired kind of relative necessity is well-suited to play the role of metaphysical necessity, and consider how the view accommodates contemporary views about features of metaphysical necessity and its typical cases.

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# Introduction

There is a surfeit of questions to be asked about possibility and necessity. One family of questions concerns different kinds of modality, including questions such as: How many different kinds of modality are there? Are some of those kinds of modality definable in terms of/reducible to other kinds? Is one kind of necessity absolute, i.e. at least as strong as every other kind of necessity? Are some kinds of modality simply incommensurable? In the following, I hope to begin addressing some of these questions. I plan to motivate and develop an account of modality according to which at least the standard alethic modalities (metaphysical, mathematical, natural, etc.), if not further kinds of modality (epistemic, deontic), are relative forms of logical modality.

A different kind of question concerns the very nature of possibility and necessity. Such issues will have an important role to play in a fully-developed account of relative modality. If an account can be given of the (non-logical) alethic modalities in terms of logical modality, then an investigation into the source and nature of logical modality should potentially provide an account of the source and nature of all alethic modalities. If the relative modality account can be extended further to other, non-alethic modalities, then such an investigation would have the potential to get to the heart of modality *tout court*. My discussion of relative modality will be set against a background agenda to potentially provide an alternative to certain popular accounts of the nature of modality.

For one, my aim is to try to give an account of modality which does not make use of the notion of a *possible world*. To properly argue against any possible worlds account of the nature of modality would be a hefty project in itself, so I will limit myself to a few remarks. First, without having to explicitly argue against a possible worlds view, it is an interesting exercise to see how far an alternative account can get without appeal to worlds. If such an account seems plausible and well-motivated, then possible worlds might begin to look like a gratuitous addition to a metaphysics of modality. Secondly, the current project is to explore relativizing other kinds of modality to *logical modality*. The standard Lewisian pluriverse of possible worlds, and its variants, is typically taken to be a pluriverse of *metaphysically* possible



worlds.<sup>1</sup> Expanding the pluriverse to include logically possible worlds would take the account further and further from standard views. If one is going to reject a standard account anyway, why retain the structure of a pluriverse of worlds? In short, the account to be developed is intended as an alternative to the standard possible worlds accounts of modality. If successful, then the existence of an alternative account at all should begin to cast doubt on the standard worlds view.

Another increasingly popular account of the nature of modality is a certain brand of essentialism. This view takes metaphysical modality to have its source in the nature of all things, and logical modality to be a subspecies of metaphysical modality.<sup>2</sup> Again, the view I present is intended to provide an alternative. Not only do my account and essentialism differ with respect to the nature of modality, but they also clash when it comes to the structure of the views. E.g., the relative modality view does not accept the essentialist claim that metaphysical necessity is absolute. As a consequence, there will be more discussion of essentialism as a rival to my proposed view than of possible worlds views.

And so to relative modality. When considering the topic of relative modality there are at least three different issues, arising from different disciplines. First, there has been extensive work in linguistics and philosophy of language to argue that *modal terms* in our language are univocal, albeit relative to some parameters, fixed by context. This view has been put forward most famously by Kratzer (1977) and in other works, where she argues, amongst other things, that different “must”s share a core meaning, relativized to contextually defined sets of worlds and orderings of worlds. Other proponents of versions of this view regarding modal language include Lycan (1994), White (1975), Wertheimer (1972) and Lewis (1979).

The second issue has a formal character, related to the discipline of logic. This concerns whether it is possible to define all *modal operators* in terms of just one, privileged, modal operator. Instead of having different modal operators to express, e.g., physical necessity, deontic necessity and logical necessity, one might seek to define the former two in terms of the latter. This is one way to interpret the contribution of Smiley (1963), and is the kind of project for which Humberstone (1981b) and van Fraassen (1977) raise considerable formal challenges. The motivation for taking on such a project may be more philosophical than formal, and the lessons taken may be that, e.g., the logically strongest kind of necessity is in some significant sense absolute,<sup>3</sup> but these discussions focus on what can be done (or not) formally.

Finally, there are issues in metaphysics, regarding what we should say

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<sup>1</sup>E.g. Lewis (1986).

<sup>2</sup>See, e.g., Fine (1994, 2005); Hale (2002b).

<sup>3</sup>See section 2.1 for further explication.

about modality in the world, modality as regards *things* rather than *words*. What does that mean? The discussions in linguistics and philosophy of language focus on modal sentences and modal terms. The metaphysics of modality might be framed in terms of what modal sentences and terms are about, or what, if anything, determines whether they are true or false. What exactly this amounts to can depend upon the kind of metaphysical background one already has. E.g., advocates of truthmaker theory hold that in at least some cases, if something is true, then there is something else which makes it true: a truthmaker. One can then ask: What are the truthmakers for modal truths (assuming there are such truths)? If one generally takes truthmakers to be facts, e.g., then one will want to know whether modal truths are made true by modal facts or non-modal facts. If the latter, one might conclude that modality is not a genuine feature of reality; if the former, one will then want to investigate the nature of modal facts. What makes them modal? Do they have a special property? Do they contain a special kind of constituent? Do modal features of reality depend for their existence on something else (e.g. human conventions) or are they ontologically independent? It is clear that these are questions in metaphysics, and not philosophy of language. It is metaphysical issues that I will be at pains to address in the following. However, considerations of language and logic can and will be brought to bear.

The relevant metaphysical questions for a theory of relative modality assume to begin with that there is modality in the world, one way or another, and asks how many different species there are, and how they are related. A relative view of modality will claim that most kinds of modality in the world are in fact merely relative forms of one other, privileged kind of modality. I take these questions to be, at least initially, orthogonal to another important set of metaphysical questions about the nature of modality, such as whether the modal facts, features and so on, which provide truth-conditions for our modal statements, are mind-independent features of reality, or whether they are somehow mind-dependent. Even so, arising out the the relative modality view will be consequences for our study of the nature of modality. E.g., the question of the source of the modal “oomph” of merely relative modalities may be reduced to the question of the source of the modal “oomph” of the fundamental modality of which the relative modalities are forms.

I should add that one version of a relative modality view would be to claim that there is more than one kind of fundamental modality, and that all other kinds are definable in terms of one or other of these fundamental kinds. This kind of view is perhaps in the spirit of the work of Fine, especially Fine (2005), where he claims that metaphysical, natural and normative necessity are all fundamental, and that other kinds of necessity can be defined in terms of these fundamental necessities. Perhaps one might wish to be a *pluralist* about modality as well as a relativist, but, as we shall see, this may turn out to undermine some of the arguments for holding a relative view of modality

to begin with.

The aim of this thesis is to present and motivate the relative modality view, whereby at least the non-logical alethic kinds of modality are mere relative forms of logical modality. The first chapter will be devoted to presenting the view, determining its correct formulation, and considering some arguments for and against. The next chapter will consider the particular challenges raised for the view by some essentialists. The third chapter will turn to look at logical modality, the bedrock of the relative modality view, and present an example of an account of logical necessity which suits it well. The fourth chapter will take a more historical turn. Here I will argue that Kant can be understood as advocating a relative modality view, in particular for what he calls “real modality”. In the fifth and final chapter I will draw on the conclusions of the preceding chapters to present a Kantian relative account of metaphysical necessity.

# Chapter 1

## Relative Modality

### 1.1 Formulating Relative Modality

#### 1.1.1 Consequence and Conditionals

It seems quite natural to make statements like the following: physical necessity is a matter of following from the laws of physics, and physical possibility is a matter of being compatible with the laws of physics. It seems natural to explicate certain kinds of modality in terms of consequence and compatibility relations to sets of propositions, such as the laws of physics. How should we formulate a relative modality view more precisely? There are two closely related ways to go. First, such views are often framed in terms of *logical consequence from* or *logical compatibility with* a set of propositions. So if some kind of modality,  $R$ -modality, is relative to some set of propositions  $\Phi$ , the  $R$ -necessities will be characterized as those propositions which follow logically from  $\Phi$ , and the  $R$ -possibilities will be characterized as those propositions which are logically compatible with  $\Phi$  (those propositions which when added to  $\Phi$  do not entail a contradiction).<sup>1</sup>

$$\begin{aligned}\langle p \rangle \text{ is } R\text{-necessary: } & \Phi \models \langle p \rangle \\ \langle p \rangle \text{ is } R\text{-possible: } & \Phi \cup \{ \langle p \rangle \} \not\models \perp\end{aligned}$$

E.g., in the case of physical modality, one might take  $\Phi$  to be the set of propositions expressing the laws of physics, and the physical necessities to be those propositions which follow logically from the laws of physics.<sup>2</sup>

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<sup>1</sup>I will be putting things in terms of propositions. I want to remain uncommitted regarding what exactly are the things which are related by consequence. These might be sentences, thoughts, senses of sentences (Fregean thoughts), facts, Russellian propositions, states of affairs, etc. In the following “proposition” should be taken to be as neutral a term as possible.

<sup>2</sup>A note on notation: I shall use “ $R$ -modality” as a place-holder for different kinds of relative modality, e.g. physical-modality. I shall use small Greek letters for propositional variables and Greek capital letters for names of sets. The expression “ $\langle p \rangle$ ” is the name of

A second formulation of the view is in terms of a necessitated conditional. Here, if  $R$ -modality is relative to some fundamental modality, expressed by a necessity operator “ $\Box$ ”, then the  $R$ -necessities are characterized as those propositions  $p$  which are the consequents of true conditionals of the form  $\Box(\varphi \rightarrow p)$ , where  $\varphi$  details the conditions to which this kind of modality is relative (it is the conjunction of the members of  $\Phi$ ). To take the case of physical necessity again, here  $\varphi$  would amount to the conjunction of the laws of physics, and the physical necessities would be those propositions  $p$  for which it is true that it is  $\Box$ -ly necessary that, if  $\varphi$ , then  $p$ .  $R$ -possibility would accordingly capture the idea that  $\varphi$  does not rule some things out, i.e. if  $\langle p \rangle$  is  $R$ ly-possible, then  $\neg\Box(\varphi \rightarrow \neg p)$ .<sup>3</sup>

It is  $R$ -necessary that  $p$ :  $\Box(\varphi \rightarrow p)$   
It is  $R$ -possible that  $p$ :  $\neg\Box(\varphi \rightarrow \neg p)$

This second formulation initially leaves open whether  $\Box$ -modality, the fundamental kind of modality, is logical modality or something else entirely.<sup>4</sup>

In the following I will favour the operator-conditional formulation. At least *prima facie*, this formulation is easier to deal with than the other. I want to allow for nested modalities and quantifying into modal contexts—even if, e.g., one doesn’t agree that there are genuinely iterated modalities, one should at least be able to express the view with which one disagrees. On the operator-conditional approach, most people take iteration and quantifying-in to be unproblematic, whereas it is not so clear that this is unproblematic on the predicate approach. Ultimately, it may turn out that the two different ways of formulating relative necessity are logically equivalent, so that nothing hangs on my choice here.

Another way to formulate relative necessity is in terms of possible worlds, either tinkering with the accessibility relation between worlds, or taking subsets of (the set of all) worlds, which amount to about the same thing. Necessity as “truth in all worlds” is restricted in the case of  $R$ -necessity to “truth in all  $R$ -accessible worlds” and possibility as “truth in some world” is restricted to “truth in some  $R$ -accessible world”, where the relevant subset of worlds is that picked out by an  $R$ -accessibility relation, and an  $R$ -

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a proposition, to be read as “the proposition that  $p$ ”.

<sup>3</sup>The formulation here now changes from “ $\langle p \rangle$  is  $R$ -necessary” to “it is  $R$ -necessary that  $p$ ”. This is to honour the fact that the relation of logical consequence is represented by a predicate, “ $\models$ ”, relating two names (of a set and of a proposition), whereas the boxed conditional consists of an operator “ $\Box$ ” applied to a (conditional) proposition. Hence in the first case I use the predicate “is  $R$ -necessary”, and in the second case the operator “It is  $R$ -necessary that”. This is also why  $\langle p \rangle$  following “ $\models$ ” needs something to distinguish it as the name of a proposition, in this case some brackets.

<sup>4</sup>See, e.g., the formalization at the end of Humberstone (1981), where the absolute necessity to which other necessities are relative, represented by “ $\Box$ ”, does not behave as one would expect logical necessity to behave, e.g. the S4 axiom is not generally valid.

accessibility relation picks out a set of worlds. E.g., it will be physically possible that  $p$  if and only if there is a physically possible world in which  $p$  is true, where the physically possible worlds are a subset of possible worlds picked out by a certain accessibility relation. In the following I will leave aside this kind of view. As stressed above, part of my agenda is to give an account of the metaphysics of modality without introducing an ontology of possible worlds.

In short, it is best to take the operator-conditional formulation as our first candidate for the canonical formulation of a relative modality view. Given that it appears to be closely related (perhaps equivalent to) an intuitive formulation in terms of logical consequence, I may at some points put things in terms of logical consequence, although when it comes to being more precise it will be better to adhere to the canonical formulation. How exactly the operator-conditional formulation will look finally has not yet been determined, due to some logical problems below.

### 1.1.2 Derivative Modality

An important consideration for a theory of relative necessity is that a principled line has to be drawn between the relative and the more basic modalities of which others are relativized forms. “Relative” is typically contrasted with “absolute”. Another related contrast can be made between “fundamental” and “derivative”. Fine (2005) suggests that a kind of modality can be a derivative form of another kind in two ways: relativization and restriction.

Depending upon which notion of necessity one starts with, there are two main strategies for defining the other notions of necessity. Suppose one starts with the narrow notion of logical necessity (or with some other suitably narrow notion). The main problem will then be to define the broader notions of necessity; and the obvious way to do this is by relativization. . . . Suppose, on the other hand, that one starts with the broad metaphysical notion of necessity (or with some other suitably broad notion). The main problem will then be to define the narrower notions of necessity; and the obvious way to do this is by restriction. (Fine, 2005, pp. 236–7)

I will focus on the prospects for the first kind of derivative treatment of modalities. Although fundamental modality is thus properly contrasted with derivative modality in general, I may sometimes talk of relative as opposed to fundamental necessities to avoid confusions arising from the notion of an absolute modality. One can define absolute necessity as a kind of necessity which is at least as strong as any other kind of necessity, which means that if it is logically necessary that  $p$ , then it will be necessary in any other sense (setting aside epistemic modalities, see section 2.1). From this alone, the

metaphysical point that the weaker necessities are nothing over and above relative forms of the absolute necessity does not immediately follow. It might be that there are interesting logical relations between different necessities which, metaphysically speaking, are not mere forms of other necessities at all.

Terminology aside, if one holds the view that one kind of modality is fundamental, and all other kinds are mere relative versions of it, then one might be obliged to tell a convincing story about why this, and not some other, kind of modality is fundamental. There will be a similar story about why the other kinds of modality are not fundamental. The simplest account is perhaps just that the relative modalities are definable in terms of the fundamental modality, however, it seems to me that this gets the order of explanation the wrong way around. Surely, if, e.g., we can define natural necessity in terms of a relativization of logical necessity, this is because natural necessity is a relative form of logical necessity. In the same way, a mathematician might be loathe to admit that numbers are really sets just because she can define numbers in terms of sets. It doesn't seem to follow from the fact that we can define one kind of thing in terms of another kind of thing that the former is in fact a kind of the latter thing. Rather, one explanation of the fact that we can provide such a definition is that one kind of thing is really another kind of thing (although there may be other explanations available). So, the challenge to provide an explanation of the difference between relative and fundamental modality stands.

Bound up with the distinction between fundamental and relative modality is the requirement that fundamental modality be given a different account. Suppose one holds that if  $\langle p \rangle$  is  $R$ -necessary, then this is to be explained in terms of it being  $\Box$ -necessary that if  $\varphi$ , then  $p$ . We cannot give an account of what it is to be  $\Box$ -necessary in terms of a  $\Box$ -necessary conditional, on pain of (vicious) circularity. Hence, work will have to be done to flesh out an account of this fundamental necessity. In the case where  $\Box$ -necessity is logical necessity, this amounts to the requirement to give an independent account of the nature of logical necessity.

The current project is focused on the prospects for treating as much modality as possible as *relative*. But what about the other kind of derivative modality, *restricted* modality? First, I must take care to make sure that my arguments for relative modality are not, in fact, arguments merely for most modalities being *derivative*, i.e. either relative or restrictive. Second, even if it is granted that many kinds of modality can be treated as relative, when it comes to particular kinds of modality, there may still be an open question regarding whether they are best treated as relative or restricted forms of (what may be a relative form of) modality. E.g., even if an account of metaphysical necessity as mere relative logical necessity is successful, it may be that the best way to define some other kinds of necessity is in terms of a restriction on metaphysical necessity.

### 1.1.3 Logical Problems

The logical study of relative modality has uncovered some problems. First, Humberstone (1981b, 2004) raises a problem for relative modalities for which the T-axiom is valid, i.e. modalities for which it is true that, if it is  $R$ -necessary that  $p$ , then it is true that  $p$ . This is an axiom that we will want to be valid for a number of kinds of modality which I also want to treat as relative, such as metaphysical and physical necessity, so this problem is of great importance.

Consider a (relative) modal operator  $O_1$  such that  $O_1A$  is defined as  $\Box(C_1 \rightarrow A)$ , for some necessity operator  $\Box$ , and some conditions  $C_1$ .

$$O_1A =_{df} \Box(C_1 \rightarrow A)$$

Suppose that the T-axiom is valid for  $O_1$ , i.e.

$$\vdash O_1A \rightarrow A$$

This is translated as

$$\vdash \Box(C_1 \rightarrow A) \rightarrow A.$$

Now consider the case where the proposition  $A$  is  $C_1$ . Nothing so far rules this out.

$$\vdash \Box(C_1 \rightarrow C_1) \rightarrow C_1.$$

The antecedent of the conditional is provable so we can detach the consequent (using *modus ponens*), which is therefore provable, and by necessitation we get that conditions  $C_1$  are logically necessary.

- |     |  |                       |
|-----|--|-----------------------|
| (1) | $\vdash \Box(C_1 \rightarrow C_1) \rightarrow C_1$ | instance of T         |
| (2) | $\vdash (C_1 \rightarrow C_1)$                     | tautology             |
| (3) | $\vdash \Box(C_1 \rightarrow C_1)$                 | necessitation rule, 2 |
| (4) | $\vdash C_1$                                       | modus ponens, 1, 3    |
| (5) | $\vdash \Box C_1$                                  | necessitation rule, 4 |

This leads to the unenviable result that our relative necessity operator,  $O_1A$ , collapses into our necessity operator  $\Box$ . If conditions  $C_1$  are  $\Box$ -necessary, then whatever follows from them will also be  $\Box$ -necessary, in particular proposition  $A$ . So if a proposition  $A$  is  $R$ -necessary, thus formulated, it follows that  $A$  is  $\Box$  necessary, i.e.

$$\vdash O_1A \supset \Box A$$

The opposite direction is simply an instance of the following which is valid in system K

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

i.e.

$$\vdash \Box A \supset \Box(C_1 \supset A).$$



So  $R$ -necessity is just equivalent to  $\Box$ -necessity.

$$\begin{aligned} &\vdash \Box A \leftrightarrow \Box(C_1 \supset A) \\ &\vdash \Box A \leftrightarrow O_1 A \end{aligned}$$

So we can't define relative necessities in this way.

By taking  $A$  as  $C_1$ , then even assuming only the logical properties conferred on  $\Box$  by K, the smallest normal modal logic, we have a conditional whose antecedent is provable and whose consequent is therefore detachable, so that  $C_1$  is provable, and hence by necessitation, our logic contains (5.6) and accordingly also (5.7) for all formulas  $A$ :

$$\begin{aligned} (5.6) \quad &\Box C_1 \\ (5.7) \quad &\Box(C_1 \rightarrow A) \leftrightarrow \Box A \\ &(2004, \text{ p. } 50) \end{aligned}$$

The problem is compounded if we consider that we may wish to include two or more relative modalities satisfying the T-axiom. In the case of a second operator  $O_2$ , things go much the same, such that, as soon as we also have the result that  $\Box(C_2 \rightarrow A) \leftrightarrow \Box A$ , we can infer from there that  $\Box(C_1 \rightarrow A) \leftrightarrow \Box(C_2 \rightarrow A)$ , and that  $O_1 A \leftrightarrow O_2 A$ , contradicting the initial assumption that  $O_1$  and  $O_2$  were distinct modal operators expressing distinct modalities.

A second problem comes from assuming that our basic modal operator  $\Box$  satisfies the S4 axiom:  $\Box A \rightarrow \Box \Box A$ . Logical necessity, e.g., is commonly assumed to satisfy this principle. Humberstone (1981b) shows that if S4 is valid for  $\Box$ , not only does this make any relative necessity operators also satisfy S4, but that the additional necessity operator in the consequent of the axiom could be *any* necessity operator, and not necessarily the same as in the antecedent.

Giving the S4 axiom to " $\Box$ " has the unfortunate consequence of making all the operators translated S4-ish, because  $\Box(C \rightarrow A) \rightarrow \Box(C \rightarrow \Box(C \rightarrow A))$  is an instance of a theorem of S4. ... Things are even worse, because the second occurrence of  $C$  here could be replaced by anything and we should still have a theorem of K4, and so once we accept  $\Box A \rightarrow \Box \Box A$  we are lumbered with proofs of the translations of formulae like  $O_1 A \rightarrow O_2 O_1 A$  for any (however unrelated)  $O_1$  and  $O_2$  we choose to deal with in the manner indicated. (1981b, p. 35)

A third problematic example involves two operators,  $O_1$  and  $O_2$ , where the T-axiom is valid for  $O_2$ , and the T-axiom is not valid for  $O_1$  but axioms

(i) and (ii) are:

$$\begin{array}{ll} \text{(i)} & A \rightarrow O_1 \neg O_1 \neg A & B \\ \text{(ii)} & O_1 A \rightarrow \neg O_1 \neg A & D \end{array}$$

Translated respectively as<sup>5</sup>

$$\begin{array}{l} \text{(i)} \quad A \rightarrow \Box(C_1 \rightarrow \Diamond(C_1 \ \& \ A)) \\ \text{(**)} \quad \Box C_1 \end{array}$$

From these assumptions it can be derived in K that T is valid for  $O_1$  after all.<sup>6</sup> At the very least, this drastically restricts the kinds of necessity operators one is able to define in the proposed way.

Humberstone proposes a solution to the problem using two-dimensional modal semantics. At the heart of the problem, he says, is the fact that the relevant conditions to which necessity is relative are not properly expressed as a proposition, picking out a set of worlds in which it is true. Rather, the relevant factor is an accessibility relation *between* worlds. When we formulate the view in terms of a proposition, rather than a relation, of course trouble ensues.

If we are trying to encode information about modal operators with their own accessibility relations, in terms of sets of worlds—the sets at which the constants  $C_i$  are true—then we are bound to lose information. (Humberstone, 2004, p. 51)

Humberstone thus replaces “ $C_i$ ” with “ $\mathbf{R}_i$ ”. “ $\mathbf{R}_i$ ” is a constant standing for a relation between worlds. A given such  $\mathbf{R}$  is valid with respect to two worlds  $x$  and  $y$  just when  $y$  is accessible from  $x$ . E.g.

If we have in mind a formalization of physical necessity, we might read “ $\models_y^x \mathbf{R}$ ” as “the laws of  $x$  are true in  $y$ ”. (1981b, p. 38)

Humberstone calls these strange creatures  $\mathbf{R}_i$  “dipropositions”, in order to emphasise their relationality. The first problem, arising from taking the T-axiom to be valid, occurs because we can freely substitute any proposition for  $A$ , including  $C_i$ . This kind of substitution is blocked by Humberstone’s strategy, because only *propositions* can be substituted into  $A$ ’s position, and  $\mathbf{R}$  stands for a *diproposition*.

The propositional variables really do range over propositions, but the sentential constants  $\mathbf{R}_i$  cannot be substituted for them because the latter are not *propositional* constants. In the terminology of [Humberstone (1981)], they are semantically interpreted

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<sup>5</sup>(\*\*) is not a direct translation, but introduced by Humberstone for simplicity as it is inter-derivable in K with what is the direct translation:  $\Box(C_1 \rightarrow A) \rightarrow \neg\Box(C_1 \rightarrow \neg A)$ . See Humberstone (1981b, p. 35)

<sup>6</sup>See Humberstone (1981b, pp. 35–6)

not as propositions but as *dipropositions*—sets of (ordered) pairs of worlds. (Humberstone, 2004, p. 53)

One strategy to solve the logical problems with the formulation of a relative modality view is to use “dipropositions” in the role of the conditions to which modalities are relative.

There is at least one pressing problem with Humberstone’s strategy. In the current project, it is not clear how one could make sense of a diproposition. This is easy enough to understand in terms of possible worlds—they express relations between worlds, or denote sets of ordered pairs of worlds. But if we are interested in an application to the metaphysics of modality, and not just the logical issues, this would require us to take seriously an ontology of worlds. I.e. relative modality would be relative to *sets of ordered pairs of worlds*. If one wishes to avoid this kind of ontology when giving an account of modality, then an alternative interpretation of Humberstone’s diproposition is required. Note that by this I do not mean some kind of anti-realist account of possible worlds, but an interpretation that does not require us to bring in worlds at all. Note also that this is not a criticism of using a notion of possible world to give a semantics for modal languages in general: the problem arises because the project is to give a metaphysical account of different kinds of modality, so this strategy would require dipropositions to appear in the metaphysics of modality, not just a semantics.

Thankfully, alternative solutions are available. I will discuss two broad strategies, the first involving the addition of a conjunct or disjunct to the formulation, the second involving the application of a quantifier.

#### 1.1.4 Adding a conjunct(disjunct)

This strategy involves drawing a line between those relative modalities which are intended to validate the T-axiom and those which are not. We might call the former “veridical” or “factive” modalities, given that according to them necessity implies truth, and the others “non-veridical” (“non-factive”).<sup>7</sup>

We can then define relative modalities for each group as follows.

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<sup>7</sup>This relates to a distinction made by Wertheimer (1972) between Systems to which modalities are relative, namely *Systems of Actuality* and *Systems of Ideality*. His view provides an example of how a motivation can be given for making a principled distinction between the two types of modality, beyond theoretical utility.

*Veridical Modality*

It is  $R$ -necessary that  $p$ :  $\Box(\varphi \rightarrow p) \ \& \ \varphi$   
 It is  $R$ -possible that  $p$ :  $\neg\Box(\varphi \rightarrow \neg p) \vee \neg\varphi$

*Non-veridical Modality*

It is  $R$ -necessary that  $p$ :  $\Box(\varphi \rightarrow p)$   
 It is  $R$ -possible that  $p$ :  $\neg\Box(\varphi \rightarrow \neg p)$

First, for veridical modalities, if  $\Box$  validates the T-axiom, then this formulation validates the T-axiom without falling foul of the collapse problem. T is valid because, from the necessary conditional from  $\varphi$  to  $\langle p \rangle$ , together with  $\varphi$ , we can infer  $\langle p \rangle$ . However, the proof for the collapse breaks down. T is now translated as

$$(\Box(\varphi \rightarrow p) \ \& \ \varphi) \rightarrow p.$$

Substituting ' $\varphi$ ' for ' $p$ ', we get the following

$$(\Box(\varphi \rightarrow \varphi) \ \& \ \varphi) \rightarrow \varphi.$$

Even detaching the provable element  $\Box(\varphi \rightarrow \varphi)$  we are still left with  $\varphi \rightarrow \varphi$  which, although true, does not allow us to infer to  $\varphi$ , and hence by necessitation to  $\Box\varphi$ . The problem does not arise in the case of non-veridical modalities because we do not require the T-axiom to be valid for them. Therefore, the extra conjunct in the formulation is omitted.

Unfortunately, this strategy breaks down when it comes to the second problem. Recall, the problem was that

$$\Box(C \rightarrow A) \rightarrow \Box(C \rightarrow \Box(C \rightarrow A))$$

is a theorem of S4, thus forcing all operators  $O_i A$  defined as  $\Box(C_i \rightarrow A)$  to validate S4. The equivalent formulation of S4 for operators defined according to the conjunct-formulation is

$$(\Box(C \rightarrow A) \ \& \ C) \rightarrow (\Box(C \rightarrow (\Box(C \rightarrow A) \ \& \ C)) \ \& \ C).$$

This is certainly a different formula, but it is also a theorem of S4. Proof:

- |   |                                    |
|---|------------------------------------|
| (1) $\Box(C \rightarrow A) \ \& \ C$  | <i>Assumption</i>                  |
| (2) $\Box(C \rightarrow A)$   | <i>1, propositional logic</i>      |
| (3) $C$   | <i>1, propositional logic</i>      |
| (4) $\Box(C \rightarrow A) \rightarrow \Box(C \rightarrow \Box(C \rightarrow A))$ | <i>Theorem of S4</i>               |
| (5) $\Box(C \rightarrow \Box(C \rightarrow A))$                                   | <i>2, 4, MPP</i>                   |
| (6) $\Box(C \rightarrow C)$   | <i>Theorem of K (and so of S4)</i> |
| (7) $\Box(C \rightarrow (\Box(C \rightarrow A) \ \& \ C))$                        | <i>5, 6, rule valid in K</i>       |
| (8) $\Box(C \rightarrow (\Box(C \rightarrow A) \ \& \ C)) \ \& \ C$               | <i>3, 7, propositional logic</i>   |

This gives us a proof of (8), on the assumption that (1). Hence, we have a proof of (1)→(8) without assumption. Therefore,

$$(\Box(C \rightarrow A) \& C) \rightarrow (\Box(C \rightarrow (\Box(C \rightarrow A) \& C)) \& C).$$

is a theorem of S4.<sup>8</sup>

One way to save the formulation is to reconsider part of Humberstone's diagnosis, that the problem comes from overly permissive substitutions. In his new system, all the key axioms, such as his S4\*

$$\Box(\mathbf{R} \rightarrow A) \rightarrow \Box(\mathbf{R} \rightarrow \Box(\mathbf{R} \rightarrow A)) \quad \text{where } A \text{ is } \mathbf{R}\text{-free}$$

come along with this proviso that  $A$  be  $\mathbf{R}$ -free. With the extra condition, the axiom is not a theorem of S4, and so is independent of the S4-ishness (or not) of  $\Box$ .<sup>9</sup> Humberstone's two-dimensional system allows him to show that these axioms are valid only for  $\mathbf{R}$ -free substitutions. If we are not to adopt the two-dimensional account of the conditions to which modalities are relative, then we may still learn the lesson that we need to make a principled restriction on the substitutions allowed into consequent position. What kind of rationale is available for such a restriction? One option would be to build a restriction into an account of the conditions to which modalities are relative. One would need to argue that there is something about being selected to play the role of conditions for  $R$ -modality which makes a proposition unsuited to itself be assessed for  $R$ -possibility and  $R$ -necessity. E.g., one might argue as follows: if a certain class of deontic necessities are those propositions which follow logically from a given moral code, what should we say about the modal status of this code? Surely it follows logically from itself, and is therefore also deontically necessary? But there was something special about the code before we went through the motions of showing it to be deontically necessary. Assessing the moral code for deontic possibility and necessity (relative to itself) misses the point of choosing that moral code in the first place, without having taken into account deontic modality at all.

This kind of argument is not convincing. Even if one accepts that a special status is conferred on conditions for a relative modality, why does that make it *illegitimate* to assess it for  $R$ -modality, rather than just *uninteresting*? Without filling out the details, such a restriction hardly seems as promising as Humberstone's use of dipositions. In order for the restriction to work at a logical level, what needs to be argued is that for any  $q$ , and any  $p$ , if  $q$  occurs thus in the formula  $\Box(q \rightarrow p) \& q$ , then  $q$  cannot be substituted into the position of  $p$  *in virtue of the fact that  $q$  already occurs thus*. It is hard to see how this could be motivated in purely logical terms.

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<sup>8</sup>Proof by Fabrice Correia.

<sup>9</sup>Actually, it turns out that S4,  $\Box A \rightarrow \Box\Box A$ , will now not be valid for  $\Box$  for arbitrary  $A$ , but only for  $\mathbf{R}$ -free  $A$ .

One might offer some different motivation—e.g. it is wrong-headed to assess moral principles against themselves—but this will not serve to block the *logical* problem.

A final problem with this formulation is epistemological. Suppose I want to assert that a proposition  $p$  is  $R$ -necessary. It seems that in order to be in a position to assert this, i.e. *that*  $\langle p \rangle$  follows logically from  $\varphi$  (and  $\varphi$ ), I need to know the content of  $\varphi$  (or at least believe that I know it). E.g., in the case of physical necessity, it's not that I assert merely that  $p$  follows from “the laws of physics” (and “the laws of physics” are true). I don't just describe the laws of physics, I really need to state them:  $\varphi$  stands in for a (conjunctive) proposition, it does not stand in for a description. So it seems that I need to know what the laws of physics are (or at least believe that I know what they are) to put myself in a position to legitimately make assertions about physical modality. However, it seems that we do understand what physical necessity and possibility are, and can make assertions about them, without knowing the laws of physics.

One response to this problem is to reiterate that the aim of the project is not to analyse the *meaning* of modal phrases such as “It is physically necessary that...”, or the conditions under which we understand them, but rather to give an account of *what it is* for something to be physically necessary. That said, if what it is for something to be physically necessary is for it to follow logically from a conjunction  $\varphi$ , which states the laws of physics, it would seem that we won't be able to say anything about the nature of physical necessity, or to state that something is physically necessary, without being able to state the laws of physics.

### 1.1.5 Quantifiers

Another strategy for resolving Humberstone's problems is to introduce a quantifier into the formulation.<sup>10</sup> This can be motivated as follows. In the background of the account is an assumption, namely that *there is* a suitable set of premises or conjunction of propositions to which the conclusion or consequent is relatively necessary, possible or impossible. E.g., in the case of physical modality, there is a background assumption that there are some laws of physics. In general, there is an assumption that if it is relatively necessary that  $p$ , then *there is* some (conjunctive) proposition *with respect to which* it is necessary that  $p$ . The current strategy brings such assumptions into the limelight, making them explicit in the form of an existential quantification. The simplest formulation is as follows:

$$\begin{array}{ll} \text{It is relatively necessary that } p: & \exists \varphi \Box(\varphi \rightarrow p) \\ \text{It is relatively possible that } p: & \neg \exists \varphi \Box(\varphi \rightarrow \neg p) \\ & [\forall \varphi \neg \Box(\varphi \rightarrow \neg p)] \end{array}$$

---

<sup>10</sup>Suggested by Bob Hale.

I.e. it is relatively necessary that  $p$  just when there is a conjunction  $\varphi$  such that  $\langle p \rangle$  is a logical consequence of  $\varphi$ . It is relatively possible that  $p$  just when it is not the case that there is a conjunction  $\varphi$  such that the negation of  $\langle p \rangle$  is a logical consequence of  $\varphi$  (alternatively, for any conjunction  $\varphi$ , it is not the case that the negation of  $\langle p \rangle$  is a logical consequence of  $\varphi$ ). I have framed this formulation as purporting to define *relative* modality, rather than a particular kind of  $R$ -modality. This is because we haven't said anything about  $\varphi$ . All that has been said is that there is some  $\varphi$  from which  $\langle p \rangle$  follows. We can only advance to the claim that it is necessary that  $p$  in some particular sense, e.g. *physically* necessary or *doxastically* necessary, once we specify that the propositions to which  $\langle p \rangle$  is relatively necessary are, e.g., *laws of physics* or *things believed by the Queen*.<sup>11</sup>

This first formulation is, however, *too* simple. It immediately entails that every proposition is relatively necessary, and that no proposition is relatively possible! First, since it is true that  $\forall p \Box(p \rightarrow p)$ , then quantifying-in, it is also true that  $\forall p \exists \varphi \Box(\varphi \rightarrow p)$ , i.e. every proposition  $p$  is relatively necessary. It is trivial that every proposition  $p$  is relatively necessary (to itself), but we need a way to express the view that certain interesting *kinds of necessity* are relative.

Second, it is supposed to be relatively possible that  $p$  just when there is no  $\varphi$  such that the negation of  $\langle p \rangle$  follows logically from  $\varphi$ . Again, there are no restrictions on the variable  $\varphi$ , on which propositions it may range over, e.g., whether they are laws of physics or moral statements or what. So the formulation of relative possibility states simply that it is relatively possible that  $p$  if *no proposition or conjunction of propositions entails*  $\neg p$ . However, for any proposition  $p$ , and its negation  $\langle \neg p \rangle$ , it is the case that  $\Box(\neg p \rightarrow \neg p)$ , hence it is true that, for any proposition  $p$ , there is some proposition such that it strictly implies  $\langle \neg p \rangle$ . So nothing is relatively possible. It is hardly attractive to define a notion out of existence in this way. The notion that we *do* seem to want to express with relative possibility seems to be something different, namely, that there is some  $\varphi$  which does not rule out  $\langle p \rangle$ :

It is relatively possible that  $p$ :  $\exists \varphi \neg \Box(\varphi \rightarrow \neg p)$

This looks better, but it is no longer the dual of relative necessity. (If one has a good reason for denying that necessity and possibility are duals,<sup>12</sup> one will not be troubled by this, but that's quite a big *if*.)

Something seems to have been lost in the change from names of propositions to propositional variables. Before, the name specified the proposition.

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<sup>11</sup>Note, this is at best an informal rendering of " $\exists \varphi \Box(\varphi \rightarrow p)$ ". Strictly speaking, " $\exists \varphi$ " is a sentential quantifier, binding a variable which can be substituted by a sentence, rather than a nominal quantifier which can be substituted by a name (e.g. of a proposition). So talk of propositions here should not be taken seriously.

<sup>12</sup>See e.g. Prior (1957, pp.41-54)

This meant that, e.g., in the case of physical necessity we could give an account in terms of “ $\varphi$ ”, confident that “ $\varphi$ ” named a conjunction of physical laws. The variable  $\varphi$ , however, merely ranges over propositions, containing no further information about features of these propositions. What seems to be required is a condition on the variable, telling us what kind of propositions we are interested in for a given relative modality. (Note that this moves us from a name of a proposition to a description of a proposition.)

We can now introduce a more complex quantifier formulation which adds a condition on  $\varphi$ .<sup>13</sup>

$$\begin{aligned} \text{It is } R\text{-necessary that } p: & \quad \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \\ \text{It is } R\text{-possible that } p: & \quad \neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p)) \end{aligned}$$

Take “ $\Psi\varphi$ ” to state something like “ $\langle\varphi\rangle$  is a conjunction of  $\Psi$ -propositions”. These formulations then state that it is  $R$ -necessary that  $p$  just when there is a  $\varphi$  such that  $\varphi$  is a conjunction of  $\Psi$ -propositions and  $\langle p\rangle$  is a logical consequence of  $\varphi$ . It is  $R$ -possible that  $p$  just when it is not the case that there is a  $\varphi$  such that  $\varphi$  is a conjunction of  $\Psi$ -propositions and the negation of  $\langle p\rangle$  is a logical consequence of  $\varphi$  (alternatively,  $\forall\varphi\neg(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$ ), i.e., for any  $\varphi$ , it is not the case that  $\varphi$  is a conjunction of  $\Psi$ -propositions and the negation of  $\langle p\rangle$  is a logical consequence of  $\varphi$ .<sup>14</sup>

Note now that there are two different ways to be  $R$ -possible: it’s not being the case that the negation of  $\langle p\rangle$  is a logical consequence of  $\varphi$  or  $\varphi$ ’s failing to be a conjunction of  $\Psi$ -propositions (i.e. there are no  $\Psi$ -propositions). To illustrate, suppose it is physically possible that  $p$  just when it is not the case that there is a  $\varphi$  such that  $\varphi$  is a conjunction of laws of physics and  $\langle\neg p\rangle$  is a logical consequence of  $\varphi$ . So  $\langle p\rangle$  can be physically possible when  $\langle\neg p\rangle$  does not follow logically from laws of physics or when there is no conjunction of laws of physics (perhaps the physical world is not law-like).

Furthermore, this avoids the problems above: relative possibility for  $\langle p\rangle$  does not require there to be *no* proposition from which  $\langle\neg p\rangle$  follows, but only that there be no proposition with the specified property  $\Psi$  from which  $\langle\neg p\rangle$  follows. Likewise, in order for it to be relatively necessary that  $p$ , there must be a proposition *satisfying*  $\Psi$  from which  $\langle p\rangle$  follows.

The solution to Humberstone’s problems is based on the illegitimacy of introducing a variable into a quantified context where that variable is already bound. I.e. the move from

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$$

to

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \varphi))$$

---

<sup>13</sup>This is the particular formulation suggested by Bob Hale.

<sup>14</sup>See footnote 11.



is illegitimate.

This blocks Humberstone's first problem by blocking the troublesome substitution into an instance of the T-axiom, i.e.

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \varphi)) \rightarrow \varphi$$

In order to prove that  $\varphi$  was a logical necessity in a similar way, one would need a derivation such as

- |     |  |                                  |
|-----|--|----------------------------------|
| (1) | $\exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \varphi))$                            | $\varphi$ is <i>R</i> -necessary |
| (2) | $\vdash \exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \varphi)) \rightarrow \varphi$ | instance of T-axiom              |
| (3) | $\vdash \varphi$   | modus ponens, 1, 2               |
| (4) | $\vdash \Box\varphi$   | necessitation rule, 3            |

However, such a derivation is unavailable. The rule of necessitation depends upon a proposition being *provable*, i.e. we can only get  $\Box\varphi$  from  $\vdash \varphi$ . In order to get this result, the premises must also be provable. Although the second premise may be valid as an instance of the T-axiom, the first is not. We can only bring it in as an assumption. The following derivation is correct, but it only tells us that  $\varphi$  follows from the premises, not that it is logically true.

- |     |  |                                  |
|-----|--|----------------------------------|
| (1) | $\exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \varphi))$                            | $\varphi$ is <i>R</i> -necessary |
| (2) | $\vdash \exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \varphi)) \rightarrow \varphi$ | instance of T-axiom              |
| (3) | $\varphi$  | modus ponens, 1, 2               |

So Humberstone's first problem can be dispatched (and without requiring a distinction between veridical and non-veridical modalities).

Humberstone's second problem is *prima facie* solvable for the same reasons. The formula which expresses S4 for a relative modality on this quantifier-formulation is.

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \rightarrow \exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))))$$

The question at hand is whether this is a theorem of an S4 system to which suitable quantificational apparatus has been added.<sup>15</sup> Here is an example of how one might go about showing this. First, suppose the antecedent of the formula.

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$$

Then, assuming a plausible  $\exists$ -elimination rule, we can infer an instance

$$\Psi\varphi_0 \ \& \ \Box(\varphi_0 \rightarrow p)$$

---

<sup>15</sup>It can't be a straightforward theorem of S4 because S4 is a propositional modal system without quantifiers.

From the second conjunct, in S4, we can infer that

$$\Box(\varphi_0 \rightarrow \Box(\varphi_0 \rightarrow p))$$

Assuming a plausible  $\exists$ -introduction rule, it seems reasonable to infer

$$\Box(\varphi_0 \rightarrow \exists\varphi\Box(\varphi \rightarrow p))$$

Bringing back the first conjunct we then have

$$\Psi\varphi_0 \ \& \ \Box(\varphi_0 \rightarrow \exists\varphi\Box(\varphi \rightarrow p))$$

And by existential generalization

$$\exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \exists\varphi\Box(\varphi \rightarrow p)))$$

This potentially gives a proof, without assumption, of the following

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \rightarrow \exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \exists\varphi\Box(\varphi \rightarrow p)))$$

Note that this is close to our target formula, but crucially omits the emboldened part shown below.

$$\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \rightarrow \exists\psi(\Psi\psi \ \& \ \Box(\psi \rightarrow \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))))$$

So this attempt at deriving the target formula in S4 fails.<sup>16</sup> I leave the onus on my opponent to show how one might succeed here differently.

I will not go into the details of Humberstone's third problem. His derivations again rely upon a substitution that is rendered illegitimate by the addition of a quantifier. Again, I will leave the onus on the opponent of relative modality to come up with proofs similar to Humberstone's challenges against the more complex formulations.

In summary, we have seen that adding a conjunct (disjunct) solves the first logical problem only for veridical modalities, and falters on the second, S4 problem. We have also seen that adding a quantifier (plus condition) solves the problems. The best formulation of the view is therefore the following.

$$\begin{aligned} \text{It is } R\text{-necessary that } p: & \ \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \\ \text{It is } R\text{-possible that } p: & \ \neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p)) \end{aligned}$$

Having settled on a rather complex formulation, I may lapse in the following and put things in terms of a proposition following from a conjunction or a set of premises, as in the first attempts at a formulation. I will allow such lapses to enable ease of discussion, taking it as read that this implies

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<sup>16</sup>Proof suggestion by Fabrice Correia.

that there is such a conjunction, and that some salient predicate applies to the conjunction.

The quantifier formulation I favour deals more naturally with the main, important kinds of relative modality, in the clause “ $\Psi\varphi$ ”, than with more gerrymandered kinds. In order to generalize out to include, e.g., the kind of necessity relativized to the conjunction of truths about the items in my desk drawer and the proposition that  $5 + 7 = 12$ , more complicated operators will be required. At the most random limit, the operator will read something like “ $\varphi$  is a conjunction of  $p, q, r$ ”, listing the propositions conjoined in  $\varphi$  rather than describing them via shared features. This quantifier formulation also solves the epistemological problem mentioned above. One no longer needs to know what the  $\Psi$ -propositions are. The formulation now says simply “There is a conjunction of  $\Psi$ -propositions”, describing the conjunction, rather than stating it.

A further detail is that this formulation can be presented either using interpreted operators, or as a schema. In the first case, a different operator is used for each kind of modality, i.e.

It is physically necessary that  $p$ :  $\exists\varphi(P\varphi \ \& \ \Box(\varphi \rightarrow p))$   
*where  $P\varphi$  means ‘ $\varphi$  is a conjunction of laws of physics’.*

It is desk-drawer necessary that  $p$ :  $\exists\varphi(D\varphi \ \& \ \Box(\varphi \rightarrow p))$   
*where  $D\varphi$  means ‘ $\varphi$  is a conjunction of  $2 + 2 = 4$  and truths about the items in my desk drawer’.*

In the second case, different kinds of necessity are expressed using the same schema, where the operator  $\Psi$  is interpreted differently for each different kind.

It is physically necessary that  $p$ :  $\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$   
*where  $\Psi\varphi$  is interpreted as  $P\varphi$ .*

One challenge for this formulation will arise when attempting to flesh out suitable predicates for familiar kinds of modality that we want to treat as relative. E.g., how should we give a fuller account of the predicate “is a conjunction of laws of physics”: what should we say about laws of physics?. One thing is clear: we cannot give an account of these laws in terms of physical necessity, such that to be a law of physics just is to be a physical necessity. More generally, we cannot give an account of  $\Psi$ -propositions, understood as a conjunction of some kind of laws, in terms of an  $R$ -necessity defined in terms of  $\Psi$ . Of course, we may still allow that, e.g., a law of physics is physically necessary, but this cannot be the *defining feature* of a law. This is an issue that will need to be addressed (see section 1.3.5).

## 1.2 The Scope of an Account of Relative Modality

### 1.2.1 Epistemic Modality

How far can the relative modality view be extended? It turns out that extending it to notions connected to propositional attitudes, such as epistemic, doxastic and boulomaic (desire-based) modalities is problematic. Similar problems also arise for deontic modalities.

The notions of epistemic necessity and possibility concern the “must”s and “might”s in sentences such as:

(Given all the evidence) Joe *must* be the killer.

(For all I know) Jane *might* be at home.

These modalities are typically linked to sets of known propositions, or sets of evidential propositions. It is thus tempting to extend an account of relative modality to the case where  $\varphi$  is a conjunction of known truths, or a conjunction of propositions about the available evidence. E.g., epistemic necessity would be defined as following from known truths.

$$\Box_{\text{epi}} p \Leftrightarrow \exists \varphi (K\varphi \ \& \ \Box(\varphi \rightarrow p))$$

where “ $K\varphi$ ” means something like “ $\varphi$  is a conjunction of known truths”. Likewise, epistemic possibility would be defined as compatibility with known truths.

$$\Diamond_{\text{epi}} p \Leftrightarrow \neg \exists \varphi (K\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$$

However, a problem arises when we consider logical truths. Logical truths are strictly implied by any proposition whatsoever, and so all logical truths will come out as epistemically necessary. They *must* be true, in the epistemic sense of “must”. However, it seems that we also want to leave room for the epistemic possibility of logical falsehoods. There are certain propositions of logic for which we do not yet know if they are true or false. So, we would intuitively describe both the proposition  $p$  and its negation  $\neg p$  as being epistemically possible (i.e. “It *might* be that  $p$ , but then again, it *might* be that  $\neg p$ ”). However, according to the formulation above, only one of the propositions will be epistemically possible, indeed, it will be epistemically necessary, the other being epistemically impossible. Logic has already decided although, epistemically speaking, the matter should be left open.

What to do? Perhaps we want to take into account those propositions which follow only from  $\varphi$ .

$$\Box_{\text{epi}} p \Leftrightarrow \exists \varphi (K\varphi \ \& \ \Box(\varphi \rightarrow p) \ \& \ \forall \psi ((K\psi \ \& \ \Box(\psi \rightarrow p)) \rightarrow \psi \equiv \varphi))$$

But this would be too strong. Surely most epistemic necessities are necessary relative to a subset of one’s known truths. E.g., it may follow from all

the truths I know about geography that Torquay is in Devon. I know other truths. Call the conjunction of all the truths I know  $p$ , and call the conjunction of all the truths I know about geography  $q$ . The formula states that if any proposition follows from a conjunction of my known truths, then that proposition follows only from one unique conjunction of my known truths. But that Torquay is in Devon follows both from  $p$  and from  $q$ , and  $\neg(p \equiv q)$ .

In any case, the logical truths follow just as much from one conjunction as from another. One might therefore try to explicitly rule them out, but this would fare no better, e.g.

$$\Box_{\text{epi}} p \Leftrightarrow \exists \varphi (K\varphi \ \& \ \Box(\varphi \rightarrow p)) \ \& \ \neg \Box p$$

This rules out any logical truth from being epistemically necessary, which is an unwelcome result. Note, this doesn't rule out logical truths from being *known*: a logical truth  $l$  may be a conjunct of  $\varphi$ , and hence be strictly implied by  $\varphi$ , but the second clause here rules out  $\langle l \rangle$  from being epistemically necessary on that basis. What is ruled out is, e.g., a logician being able to make the true claim after going through a rigorous proof:

“Aha! Now I see, it *must* be that  $l$ .”

This is surely not something a good account of epistemic modality should immediately rule out. Of course, his being able to make such a true claim may be ruled out for other reasons, e.g., if there is no knowledge, and hence no known truths from which  $\langle p \rangle$  follows. The point is that the truth of the claim shouldn't be ruled out just from saying what epistemic necessity is, whether or not there is any.

Such problems are not restricted to the case of logical truth, where the relevant propositions follow from any set whatsoever. The set of Peano axioms is a set of arguably non-logical truths, jointly known by many people. Whatever follows from these propositions ought therefore to be epistemically necessary, given the definition above. However, certain propositions about numbers such as Goldbach's conjecture are not yet known to be true (or false) by anyone. Granted that either Goldbach's conjecture or its negation follows from the Peano axioms, it should be epistemically necessary or epistemically impossible, yet we want to count both the conjecture and its negation as being epistemically possible, given that the matter is still open.

I shall not address how to give an account of epistemic modality here, but I will briefly run through some different ways one might respond to these problems. *First*, Edgington (2004) draws a distinction between relative and absolute epistemic modality. Relative epistemic modality depends upon what is known by a subject at a time, i.e. it is relative to the state of information of a subject at a time. Absolute epistemic modality, by contrast, concerns what can be known whatever the state of information, subject, or time. Edgington connects this absolute notion with the *a priori*.

Relative epistemic possibilities are also constrained by two kinds of thing, one peculiar to the subject—what she already takes as known, the other not—what combinations of things can be recognised as impossible whatever state of information the subject is in. Call these things absolutely epistemically impossible, or *a priori* impossible. I leave unanswered the question of the source of *a priori* knowledge. But I do capture the core of the traditional notion: *a priori* knowledge is independent of the state of information of the subject. We are all, at all times, capable of ruling out that a thing be both round and square, and so on. (Edgington, 2004, p. 6)

The suggestion one can take from Edgington’s notion of absolute epistemic modality is that we should bite the bullet and accept that, for a given unknown logical truth, yes, it is (absolutely) epistemically necessary, and its negation is (absolutely) epistemically impossible. These kinds of truths can be known in any state of information.

Edgington has provided us with an interesting option for accommodating epistemic modality in the relative modality view: allow the *prima facie* unintuitive consequences regarding logical truths, but use them to delineate the *a priori*. However, there is still a distinct notion of a kind of modality importantly connected to what is known, and what can be known or ruled out on that basis. This is the notion I described above, whereby an unknown logical truth and its negation are both rendered possible. If that is not properly called “epistemic” modality, so be it. But there remains a question how to accommodate this notion, call it “epistemish” modality, in the relative modality framework. Another example of a nearby kind of modality is that which is relative to a subject *s*’s true beliefs, rather than their knowledge (for all *s* truly believes. . .). The same problem arises: if *s* has no true belief that *p* and no true belief that  $\neg p$ , for some logical truth *p*, then it doesn’t seem right that  $\langle p \rangle$  will nevertheless come out to be necessary or impossible relative to *s*’s true beliefs. In order to apply Edgington’s strategy, one would need a notion of an *a priori* true belief, but *a prioricity* is a notion attaching to knowledge.

A further worry for this option is that it may have unwelcome consequences when it comes to *unknowable* logical truths. Suppose it has been proven that a given logical proposition, *u*, is *undecidable*, i.e. it has been proven that there is no proof that *u* and no proof that  $\neg u$ . Suppose also that  $\langle u \rangle$  is a very complicated proposition, such that our only chance for getting to know whether it (or its negation) is true would be through a proof (i.e. it would take too long to test every case, and it is too complex to be able to just “see” its truth, and so on). Suppose, also, that we are non-deviant and hold to the law of the excluded middle, so that either  $\langle u \rangle$  or  $\langle \neg u \rangle$  is true. Whichever is true, it will be a logical truth. Suppose that in fact  $\langle \neg u \rangle$  is the

logical truth. On the proposed Edgington-inspired strategy, it will turn out that  $\langle \neg u \rangle$  is knowable *a priori*: it can be known in any state of information whatsoever. But it seems that one will be able to make a pretty good case for  $\langle \neg u \rangle$  not being knowable *at all*. If it *is* knowable, then an explanation is owed regarding how it could be known, given that the usual suspects (proof, empirical testing, rational intuition) are ruled out.

*Second*, one promising way to try to capture the idea that we want to know the logical consequences of  $\varphi$  in particular, not necessarily including the logical consequences which follow from *any* propositions, would be to make use of a *Relevant Logic*.<sup>17</sup> This family of logics tries to avoid the paradoxes of material and strict implication by trying to capture formally the idea that in a valid inference the premises must be somehow “relevant” to the conclusion. Given a conjunction of known propositions  $\varphi$ , not including logical truths, the conclusion that  $p \supset p$  would not be said to follow logically from  $\varphi$  in a Relevant Logic, even though in Classical Logic  $\langle p \supset p \rangle$  is a consequence of any premises whatsoever. So one would not be forced to conclude that such a logical truth is epistemically necessary, if, intuitively speaking, *for all one knows* it could be either true or false. I will discuss this option in more detail in section 1.2.4.

*Third*, one could restrict an account of relative modality to alethic modalities. This is what I will do in the remainder of this thesis. It would be nice if the account could be extended such that most, perhaps all, kinds of modality could be reduced to relative forms of logical modality, leaving only logical modality requiring deeper explanation. Furthermore, such a general account would help us to explain what diverse kinds of modality have in common (see section 1.3.2). However, this scale of account is too ambitious for the present.

## 1.2.2 Propositional Attitudes

Knowledge is often taken to be a propositional attitude. Problems besetting epistemic modality appear to carry over to other kinds of modality based on propositional attitudes, such as *doxastic* modality (belief) and *boulomaic* modality (desire). E.g.

(Given everything Columbo believes) Joe *must* be the killer.

(Given my desires for music) I *must* have that album.

Suppose we define doxastic necessity as following logically from a set of propositions believed by a subject, and doxastic possibility as compatibility with those beliefs. As with epistemic modality, all logical truths will turn out to be doxastically necessary. Yet, for a given logical truth  $p$ , I may believe neither  $\langle p \rangle$  nor  $\langle \neg p \rangle$ , and my other beliefs may not rule out either. Surely  $\langle p \rangle$

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<sup>17</sup>A.K.A. *Relevance Logic*.

and  $\langle \neg p \rangle$  both count intuitively as doxastically possible—*for all I believe, p* and *for all I believe,  $\neg p$* —and yet one of them must be doxastically impossible. The same goes for a notion of boulomaic modality, whereby boulomaic necessity is a matter of following from a set of desires, and boulomaic possibility a matter of compatibility with those desires. Again, logical truths will be boulomaically necessary. I may have no interest in whether  $\langle p \rangle$  or  $\langle \neg p \rangle$ , and yet one will be boulomaically necessary. There is also the unwelcome consequence that logical falsehoods will be doxastically and boulomaically *impossible*, i.e. unbelievable and undesirable. But a bad logician may believe a logical falsehood, and a long-suffering logician with an unwelcome end to his proof may desire that this logical falsehood be true. (And this is all without considering that we often have contradictory desires and beliefs.)

Related problems arise for deontic modality. If we define deontic necessity as following from propositions comprising a moral code, say, then all logical truths will also follow from the moral code, and hence be deontically necessary. But it seems counter-intuitive to suppose that all logical truths *ought* to be the case, or *must* be the case in the sense of some moral imperative. Indeed, one can imagine a strange moral code arising such that it is morally obligatory that some contradictions be true.<sup>18</sup> Then it should follow from the moral code that some contradictions are true, but this has already been ruled out.

A possible diagnosis of these problems is suggested by highlighting the feature that these kinds of modalities, or at least doxastic, boulomaic and arguably epistemic, are based on a propositional attitude. Given a set of propositions to which an agent has a particular attitude, we can say how this bears on other, related propositions. E.g., if I believe that Torquay is in Devon, this has implications for the proposition that Torquay is not in Devon, i.e. given what I believe, it can't be true. A pertinent question to ask here is: How far should modalities based upon our attitudes be expected to extend? Can we expect our having attitudes towards certain propositions to imply our having attitudes towards other propositions? If certain logical truths and logical falsehoods do not fall under the purview of a set of propositions to which an attitude is held, nor propositions with a related content, perhaps we should be wary of extending the consequences of those attitudes to the unrelated propositions. It seems to me that this kind of sketchy diagnosis of the problems provides additional motivation for using a Relevant Logic. It seems to accord with the idea that having attitudes towards a certain set of propositions shouldn't be taken to have consequences for our also taking attitudes to (relevantly) unrelated propositions.

The case of deontic modality is different, depending on one's account of a moral code. If one takes the notions of right and wrong to be importantly connected to our attitudes, then all is well and good. If not, an alternative

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<sup>18</sup>Unless you think that *ought* implies *can*.



diagnosis may be required. However, even if one doesn't agree that deontic modalities have anything to do with propositional attitudes, one can still motivate the use of Relevant Logic to help solve its particular problems. Suppose we take a deontic modality to be based on some moral code, or suchlike. One would not expect matters falling outside of what is mentioned in that code to be bound by them. E.g., suppose I have a moral code consisting solely of the two following propositions:

1. Thou shalt not kill.
2. Honour thy father and mother.

A notion of deontic necessity relativized to these two propositions would render it impermissible (deontically impossible) for me to commit a murder. It would also make showing respect to my mother obligatory for me (deontically necessary). Deontic possibility, admittedly, could follow from the absence of any prescriptions, e.g., as this code does not mention stealing, it would appear to be permissible for me to steal something. What does seem counter-intuitive is that something should be *impermissible* or *obligatory* without it being explicitly related to something in the code. E.g., Classical tautologies such as *if grass is green, then if the sky is blue then grass is green* will be deontically necessary, but why *must* such a thing be so, in the sense of moral obligation? Have I been good if it's true? Again, it seems that a neat way of out of this problem is to use a logic which requires premises to be relevant to a conclusion.

### 1.2.3 Inconsistent Conditions

Another problem case arises where the set of propositions to which a kind of modality is supposed to be relative is *inconsistent*. It seems appropriate to include this kind of problem amongst problems associated with non-alethic modalities, as I am assuming that contradictions can't be true, so, e.g., I would not expect necessities following from a contradiction to themselves imply truth (just as I would not expect doxastic necessities following from a set of false beliefs to imply truth). It seems that intuitively plausible kinds of modality will be susceptible to this kind of problem, e.g. it does not seem unlikely that someone might hold inconsistent beliefs (affecting doxastic modality), or that they might hold inconsistent desires (affecting boulomaic modality), or that an overly demanding and complex moral code might make inconsistent prescriptions (affecting deontic modality), or that a complicated legal system built up over many centuries might contain inconsistent laws (affecting legal necessity), and so on.

If the set of propositions  $\Phi$  to which a given  $R$ -modality is relative is inconsistent, then every proposition will turn out to be  $R$ -necessary on a logical consequence relation which conforms to the explosion rule of inference *ex falso quodlibet* (everything follows from a contradiction). Recall,

It is  $R$ -necessary that  $p$ :  $\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$

We can now see that if  $\varphi$  is a conjunction of inconsistent propositions (falling under condition  $\Psi$ ), then any  $p$  will come out as  $R$ -necessary.

Conversely, it would seem that nothing would be  $R$ -possible. Put in terms of logical consequence: if  $\Phi$  already entails  $\perp$ , then so will  $\Phi \cup \{p\}$  for any  $p$ , so there is no  $p$  such that  $\Phi \cup \{p\} \not\vdash \perp$ , so no proposition  $p$  is such that it is  $R$ -possible that  $p$ . Put in terms of the quantified formulation: recall

It is  $R$ -possible that  $p$ :  $\neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$   
 $[\forall\varphi(\Psi\varphi \supset \neg\Box(\varphi \rightarrow \neg p))]$

Suppose that there is a  $\varphi$  which satisfies condition  $\Psi$  but which is inconsistent.

- |      |  |                                |
|------|--|--------------------------------|
| (1)  | $\exists\varphi(\Psi\varphi \ \& \ \text{INC}\varphi)$                     | assumption                     |
| (2)  | $\Psi q \ \& \ \text{INC}q$  | existential elim, 1            |
| (3)  | $\Psi q$   | & elim, 2                      |
| (4)  | $\text{INC}q$  | & elim, 2                      |
| (5)  | $\forall\varphi(\Psi\varphi \supset \neg\Box(\varphi \rightarrow \neg p))$ | $R$ -possibility               |
| (6)  | $\Psi q \supset \neg\Box(q \rightarrow \neg p)$                            | universal elim, 5              |
| (7)  | $\neg\Box(q \rightarrow \neg p)$   | modus ponens, 3, 6             |
| (8)  | $\Diamond(q \ \& \ p)$   | modal logic, 7                 |
| (9)  | $\Diamond q$   | modal logic, 8                 |
| (10) | $\Diamond q \ \& \ \text{INC}q$  | conjunction introduction, 4, 9 |
| (11) | $\neg\exists\varphi(\Psi\varphi \ \& \ \text{INC}\varphi)$                 | reductio, 1                    |

There is a contradiction in an inconsistent proposition being (logically) possible, so the initial assumption has to be rejected. So nothing can be possible relative to inconsistent  $\varphi$ .

Note that the operator in this formulation makes the problem slightly more narrow: it will only apply to kinds of modality where the defining condition  $\Psi$  can be true of an inconsistent proposition. As long as it is agreed that there are no inconsistent conjunctions of laws of physics, and so on, this would appear to add weight to the assumption that the inconsistency problem will not affect standard alethic modalities.

However we put the point, inconsistent sets of propositions are clearly A Bad Thing for non-veridical modalities. A simple response would be to deny that the account applies to inconsistent sets of propositions. A less *ad hoc* proposal is made by Kratzer (1977), which employs consistent subsets of  $\Phi$ .

It is *R*-necessary that *p*: if  $\Delta$  is the set of all consistent subsets of  $\Phi$ , then there is for every set in  $\Delta$  a superset in  $\Delta$  from which  $\langle p \rangle$  follows logically.

It is *R*-possible that *p*: if  $\Delta$  is the set of all consistent subsets of  $\Phi$ , then there is a set in  $\Delta$  such that  $\langle p \rangle$  is logically compatible with all its supersets in  $\Delta$ .

In the case of an inconsistent set  $\{p, q, \neg q\}$ , call it *A*, Kratzer's solution allows that  $\langle p \rangle$  be necessary: for every consistent subset there is a superset from which  $\langle p \rangle$  follows. The consistent subsets of *A* are  $\{p, q\}$ ,  $\{p, \neg q\}$ ,  $\{p\}$ ,  $\{q\}$ ,  $\{\neg q\}$ ,  $\emptyset$ . Call this set of consistent subsets *X*. For each of those sets, there is a superset of it in *X* such that  $\langle p \rangle$  follows from that superset, e.g.,  $\{p, q\}$  is a superset of  $\{q\}$ , is a member of *X*, and entails that *p*. However, it is not the case that any arbitrary proposition can be necessary. E.g., take  $\langle \neg p \rangle$ . There are no sets in *X* from which  $\langle \neg p \rangle$  follows, particularly no sets in *X* which are supersets of other members of *X*.

This response looks rather complicated, but for good reason. If necessity were a matter of following from every consistent subset, then  $\langle p \rangle$  wouldn't come out necessary. This would be too strong, hence Kratzer introduces supersets. If necessity were a matter of following from just *some* consistent subset, then both  $\langle q \rangle$  and  $\langle \neg q \rangle$  would be necessary. Assuming that we want to rule out necessary contradictions, this seems too weak. Kratzer's solution is just right.

Another way to address this kind of problem would be to reject *ex falso quodlibet*. This rejection is precisely one of the features of a Relevant Logic.

#### 1.2.4 Relevant Logic

One prospect for extending a relative modality treatment beyond alethic modalities is to use a *Relevant*, rather than a *Classical* logic. I will close this discussion regarding the scope of the relative modality view by running through this option and some of its benefits and drawbacks.

What is Relevant Logic? Broadly speaking, we might describe different logical systems—Classical, Intuitionist, Dialethic, Relevant, etc.—to be based on taking different views about what it is for an argument from premises to conclusion to be valid.

The purpose of logical theory is to provide an explanation of the validity and invalidity of argument. The goal is to describe the relation which must hold between premises and conclusion for it to be correct to say that the premises entail the conclusion, that

the conclusion follows from the premises, or that the inference from premises to conclusion is valid. (Read, 1988, p. 19)

The development of Relevant Logic can be understood as a reaction to the Classical validity of certain arguments which intuitively seem invalid, and the associated paradoxes of material and strict implication. These results are achieved by various means. E.g., Read (1988) changes the rules for some of his connectives (most importantly “and” and “if... then”), which in turn allows him to give an alternative definition of validity.

In *Relevant Logic*, Read presents some compelling examples of classically valid but intuitively invalid arguments.

Let us suppose that Roy Dyckhoff has claimed that John Slaney was in Edinburgh on a certain day, and that Crispin Wright has denied it. Consider the following three propositions as they describe this situation.

(1) If John was in Edinburgh, Roy was right.

This is clearly true: that’s what Roy claimed.

(2) If Crispin was right, so was Roy.

That is equally obviously false, given the logic of denial.

(3) If John was in Edinburgh, Crispin was right.

That too is false, for Crispin denied it. Let us use these propositions to construct an argument, taking as premises (1) together with the denial of (2), and as conclusion (3):

If John was in Edinburgh, then Roy was right.

It’s not the case that if Crispin was right, so was Roy.

Hence, if John was in Edinburgh, Crispin was right.

Since (1) is true and (2) and (3) false, this argument, which takes the denial of (2) as its second premise, has true premises and a false conclusion. Hence it is invalid.

Classically, however, the argument is valid. For the sequent

$$P \supset Q, \sim (R \supset Q) \vdash P \supset R$$

which formalizes the argument classically, using ‘ $\supset$ ’, representing material implication, to capture ‘if’, is (classically) valid.

(Read, 1988, pp. 23–4)

Such examples do seem to indicate that something fishy is going on with the Classical view of validity, and the view that ‘if... then’ is to be captured by the material conditional (defined as:  $(p \supset q) \Leftrightarrow \neg(p \ \& \ \neg q)$ ).

I do not wish to digress too far by dwelling on the details of Relevant Logic. For present purposes, one important point is that this kind of logic avoids (indeed has been developed in order to avoid) the paradoxes of strict implication.<sup>19</sup> These paradoxes include:

- $(p \ \& \ \neg p) \multimap q$
- $p \multimap (q \multimap q)$
- $p \multimap (q \vee \neg q)$

where “ $p \multimap q$ ” here is short for “ $\Box(p \supset q)$ ”.<sup>20</sup>

These paradoxes are exactly the kind of results that are problematic for the relative modality treatment of the kinds of modality I have been discussing. Take the following candidate definition of epistemic necessity:

$$\Box_{\text{epi}} p \quad \Leftrightarrow \quad \exists \varphi (K\varphi \ \& \ \Box(\varphi \rightarrow p))$$

where “ $K$ ” means “is a conjunction of known truths”, reading “ $\rightarrow$ ” as the material conditional. Whenever  $\langle p \rangle$  is a logical truth, the right-hand-side will be satisfied, and so  $\langle p \rangle$  will be epistemically necessary, granted that there is a conjunction of known truths. Note that this includes cases where the second conjunct of the right-hand-side,  $\Box(\varphi \rightarrow p)$ , a strict implication, is of the form  $\Box(\varphi \rightarrow (q \multimap q))$ , (where  $p$  is  $(q \multimap q)$ ), or of the form  $\Box(\varphi \rightarrow (q \vee \neg q))$ , (where  $p$  is  $(q \vee \neg q)$ ), the paradoxes mentioned above. If the background logic for the definition ruled out its being trivially true that  $\Box(\varphi \rightarrow p)$  for any logically true  $p$ , then we would avoid the problem of logical truths always being epistemically necessary. The right-hand-side of the definition would no longer be immediately satisfied whenever  $\langle p \rangle$  is a logical truth, so logical truths are not rendered immediately epistemically necessary in this way.

Take as a second example the following candidate definition of a legal necessity:

$$\Box_{\text{legal}} p \quad \Leftrightarrow \quad \exists \varphi (L\varphi \ \& \ \Box(\varphi \rightarrow p))$$

where the operator “ $L$ ” can be read as “is a conjunction of UK laws”. Suppose that, due to inattention in legislation, this conjunction of laws is in fact contradictory—it contains, for some  $q$ , both  $\langle q \rangle$  and  $\langle \neg q \rangle$ . According to Classical Logic, anything follows from a contradiction, and so the right-hand-side of the definition will be satisfied. So  $\langle p \rangle$  will be legally necessary, for any  $p$ . In a Relevant Logic, the rule of inference that anything follows from a contradiction is eliminated from the system, so according to such a

<sup>19</sup>See Mares (2009)

<sup>20</sup>My own notation. I have tried to leave the precise interpretation of implication and consequence open elsewhere, i.e. regarding whether “ $\rightarrow$ ” is to be read as material implication, or some other kind of implication, and whether “ $\models$ ” is to be understood in terms of Classical logical consequence or some other notion of logical consequence.

logic, the right-hand-side of the definition is not guaranteed to be true for any  $p$ . Hence the problem of inconsistent conditions for modality can be avoided.

In general, then, the employment of a relevant logic addresses the various problems raised for extending a relative treatment of modality to kinds of modality such as epistemic, doxastic and deontic modalities, by respecting our intuitions that the conjunction of conditions to which the modality is relative should be relevant to the resulting possibilities and necessities. It does this by blocking certain rules for conditionals, such as rules which allow that you can build a necessarily true conditional out of any antecedent and a tautologous consequent. This kind of logic also rejects the rule of inference *ex falso quodlibet*, providing a solution to problems arising from inconsistent conditions to which a kind of modality is relative.

One drawback to this strategy is that it does not seem appropriate to use Relevant Logic across the board, i.e. to also use it for alethic modalities. E.g., although a given logical truth doesn't seem to be directly relevant to the laws of physics, we still would not want to say that the negation of a logical truth is therefore physically possible. Physics doesn't allow for logical impossibility, although our propositional attitudes might. One response here might be to draw a distinction between kinds of modality, between those best treated with a Classical as opposed to a Relevant logic. Given the kinds of modalities for which a Classical logic is problematic, this begins to resemble the distinction made above between veridical and non-veridical modalities. Modalities such as doxastic and deontic are not so much concerned with *truth*, as they are with specifically what follows from certain propositions. It doesn't matter if a logical truth is true—it is simply not relevant to this kind of modality. Kinds of necessity which concern ways of being true, alethic necessities, are different. By including some propositions to which necessity is relative, the range of resulting necessities is broadened, but that there should be some logical truths included does not seem problematic. They are still true, and alethic modalities are not in the business of ruling out truth. Epistemic necessity may also imply truth, but it is not so much a way of being true as connected to a propositional attitude which is factive: being known is not a way to be true, but something that might happen to a truth incidentally.

I do not wish to settle the question of how far the relative modality view can or should be extended here. In general, I will focus primarily on alethic modalities, especially logical and metaphysical modality. However, I submit that *if* the account is to be extended to kinds of modality such as epistemic, deontic and doxastic modalities, then it seems that a promising option for accommodating them requires that we employ a deep distinction between these and other, alethic kinds of modality. This in turn would appear to have consequences for the account given of the modality to which other kinds of modality are relative. Rather than simply logical modality, we would have

both Classical logical modality and Relevant logical modality.<sup>21</sup> It remains to be seen whether the two could be reconciled, or whether this reflects a deep and fundamental division between two families of modality.

### 1.3 Some Arguments For and Against

Having looked at how best to formulate the view that some kinds of modality (at least non-logical alethic kinds) are relative kinds of one fundamental kind (logical modality), the pressing issue is now to consider what reasons there are in favour of endorsing such a view.

#### 1.3.1 The Argument from Linguistics

Most arguments in the literature in favour of relative modality of some form are to be found in linguistics and philosophy of language, regarding the nature of modal *terms*. The main argument comes from the plethora of different modals of the same force, i.e. different “must”s and “can”s. There is such a great variety of modals to be found in the linguistic data, that it is implausible to think they are different words with different meanings (such that words like “must” are ambiguous in a similar way to the ambiguity of “bank”). Furthermore, all these different “must”s and “can”s do seem to share some significant portion of meaning. It makes better sense to assume that, rather than ambiguous words with many meanings, we have univocal words with one meaning along with something like parameters to be determined by context. Lycan (1994) motivates the view by considering the many different and subtle changes in modals in everyday use, concluding

My purpose is only to indicate that everyday English is shot through with restricted alethic modalities whose restrictions are almost capriciously diverse, rarely aligned with any easily specifiable modal concept known to logicians, and irreparably vague—yet calculated on the spot by ordinary human speakers/hearers with hardly a conscious thought. (1994, p. 176)

Having considered this kind of data, Kratzer (1977) argues

All this leaves us with many different ‘must’s and ‘can’s. What can we do with them? We could give them different names. Numbers have been proposed. Let’s have

‘must<sub>1</sub>’, ‘must<sub>2</sub>’, ‘must<sub>3</sub>’,...

‘can<sub>1</sub>’, ‘can<sub>2</sub>’, ‘can<sub>3</sub>’,...

But we might not have enough numbers. How many bits of knowledge are there, to which we can refer? How often does the

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<sup>21</sup>This might result in a kind of *Modal Pluralism*. However, this might undermine the Argument from Similarity, see section 1.3.2.

Queen change her mind? ... How many kinds of duties can we take into consideration? And even if we had enough numbers, it would not be very sensible to use them here. In everyday conversation we do not use subscripts when we use the words ‘must’ and ‘can’. Somehow we do without them. And even quite easily. There must be another way by means of which we make ourselves understood using these words. (Kratzer, 1977, pp. 339-40)

For Kratzer, the explanation of this other way is a common core of meaning—“must-in-view-of”, “can-in-view-of”—relativized to different parameters. Lewis (1979) also appears to be convinced by this kind of argument.

The “can” and “must” of ordinary language ... usually ... express various relative modalities. ... That suggests that “can” and “must” are ambiguous. But on that hypothesis, as Kratzer has convincingly argued, the alleged senses are altogether too numerous. We do better to think of our modal verbs as unambiguous but relative. (Lewis, 1979, p. 354)

This may be a widely accepted view regarding modal terms, but these are arguments concerning pieces of language, and the current project is concerned with the *metaphysics* of modality. Conclusions regarding how modal language works do not immediately tell us how reality is. However, two arguments for a metaphysical thesis of relative modality—that most kinds of modality are in fact merely relative forms of another, fundamental, kind of modality—can be formulated on the basis of arguments concerning modal language.

The first argument is an appeal to take the account of modal language seriously as a guide to modal reality. If we speak about a plentiful variety of kinds of modality, and we say something true, then we should be prepared to accept that there are many such kinds of modality in the world. And, if we take seriously the claim that our modal terms are univocal but relative, this suggests that we ought to take seriously the idea that there is one core type of modality, to which the others are relative.

One problem with this kind of argument, given my agenda, is that when it comes to giving a semantics for modal terms, possible worlds are often brought onto the scene. If one can be persuaded to take this semantics seriously, then it looks like one will have to admit a possible worlds ontology. This is what I don’t want to do. However, not all treatments of modal language use possible worlds. E.g., the semantics that Kratzer offers is situated firmly in a possible worlds framework (see Kratzer (1977, 2008)). However, Wertheimer (1972) provides an example of a treatment of modal language in other terms, namely, in terms of “Systems”, where a System is ‘a more or less well organized and integrated system of laws (and perhaps



other propositions as well) concerning some more or less well-defined set of objects' (1972, p. 88), and “must” and “can” are analyzed in terms of constraints imposed by these Systems. Without going into detail, suffice it to say that although different linguists and philosophers disagree on the details of the semantics, there does appear to be significant consensus regarding the relativity of modals. This is the lesson we should take seriously. Where linguists and philosophers of language have converged on the relativity of modal terms, but not a specific semantics, we can take seriously the relativity without having to take on board a specific semantic treatment. We can then take this major point of agreement as a significant motivation for taking the relativity of modal language to be a reflection of the relativity of modal reality (assuming that modal language is somehow fact-stating).

Consider things from another direction. Suppose we agree that modal terms are univocal but relative, and that modal language is in the business of stating facts. If we also claim that in reality different kinds of modality are not relative to one fundamental kind, but independent, then it seems that we will have to say something like: for each (or most) relativization(s) of a modal term in our language, there is a kind of modality in the world corresponding to it, but which is not itself relative in the manner described. This seems strange. Apart from anything, why would we use the same word, with a constant meaning, to refer to so many different things? If, e.g., the “must”s in ‘ $2 + 2$  must equal 4’ and ‘Every effect must have a cause’ denote genuinely distinct and unrelated modalities in the world, how can we explain using the same word with the same core meaning? Indeed, what could that core meaning be, if not a basic kind of modality?

One might object here that there is a significant disanalogy between the linguistic case and the metaphysical case: the linguistic accounts claim that there is a common core to all modal terms with a parameter to be fixed, whereas the metaphysical account argues that there is a fundamental kind of modality, to which other kinds of modality are relative. E.g., the core element “must-in-view-of  $x$ ” is supposed to be common to logical necessity and physical necessity alike, in both cases being fleshed-out with a specification of the conditions in view of which something is necessary. In contrast, the metaphysical view takes, e.g., physical necessity to be a form of logical necessity, relative to some conditions. Doesn't this disanalogy make it difficult to use the linguistic considerations as an aid to the metaphysical view? No. Consider, there must be some kind of limiting case for “must-in-view-of”, where the set of conditions in view of which something is necessary is minimal, perhaps empty. What kind of modality might this express? Surely a kind of necessity which is relative to no conditions is not properly described as relative at all. It seems to me that this limiting case of necessity on the linguistic view corresponds to the fundamental necessity on the metaphysical view, to which other kinds of necessity are relative.

### 1.3.2 Similarities and Differences

The second type of argument is more loosely inspired by linguistic considerations. The idea is to note that all the different kinds of modality in the world seem to have something important in common (just as all the “must”s and “can”s have a shared core meaning). Metaphysical necessity and natural necessity, say, are taken to be distinct kinds of necessity, subject to different principles. Even so, they are fundamentally alike. They are both *necessities* for a start. That different necessities and possibilities have something in common demands explanation. What is the core common to different modalities? One plausible explanation is that there is only one fundamental kind of modality in the world, and all other kinds are derivative forms of this modality. The commonality or “shared core” between different derivative modalities is then a matter of them all being derivative forms of the same thing. The commonality between derivative modalities and the fundamental modality is that the former is a derivative form of the latter. Perhaps there is more than one fundamental kind, each with its own derivative modalities, however, this will raise the challenge to explain the deep similarities between them, and the derivative modalities relative to them.

Does this argument favour a *relative* modality view over a more general derivative modality view, where derivative modality may be relative or restricted. The relative modality view claims that different kinds of modality are similar because they are relative forms of a fundamental kind of modality, logical modality. The derivative modality view would claim that similarity is accounted for in at least some cases because the relevant kind of modality is a restricted class of some other modality, i.e. the physical possibilities might be a subset of the metaphysical possibilities. There are two main considerations which make this approach less favourable than a relative modality view.

First, in order to explain important similarities between different kinds of *necessity* in terms of restriction, one will need a very wide notion of necessity to restrict. E.g., it is standardly thought that the realm of physical necessity is narrower than the realm of physiological necessity. So if one were to apply a restrictive strategy here, the physical necessity would simply be a subclass of the physiological necessities. In order to accommodate all the different kinds, the widest kind of necessity is going to be something very weak. Hardly an ideal paradigm from which to explain how it is that, e.g., physical necessities are necessary. In contrast, the relative modality view does not need the fundamental kind of modality to somehow “contain” all the others, so that they can be isolated by restriction. This allows us to take a stronger and more intuitively robust kind of modality as the basis for explanation. That said, there would be no analogous problem in explaining different kinds of *possibility* in terms of restriction of a wide, weak form of possibility.

An additional consideration is that restrictive strategies often tend to start with metaphysical modality. E.g., Fine takes metaphysical modality to find its source in the essential nature of all things, and some kinds of modality to find their source in the essential nature of a more restricted class of things (e.g. conceptual necessity finds its source in the nature of concepts, which are things), such that these other kinds turn out to be restricted kinds of metaphysical modality. But metaphysical modality itself is a rather mysterious notion. So all restricted kinds of modality would likewise be mysterious.

In response to the call for an explanation of similarity between different modalities, a modal pluralist might reply that a relative theory of modality cannot account for important *differences* between the most significant kinds of modality. This is indeed Fine's complaint when he discusses treating natural necessity as a relative kind of necessity. The problem arises from the fact that the notion of relative modality can be applied to any set of propositions, however, we seem to take necessities following from some sets of propositions more seriously than others.

Any true proposition whatever can be seen as necessary under the adoption of a suitable definition of relative necessity. Any proposition that I truly believe, for example, will be necessary relative to the conjunction of my true beliefs, and any proposition concerning the future will be necessary relative to the conjunction of all future truths. The problem therefore is to explain why the necessity that issues from the definition of natural necessity is not of this cheap and trivial sort. (Fine, 2005, p. 247)

E.g., it might be necessary relative to the set of my true beliefs that  $2+2 = 4$ , but it is also necessary relative to a set of mathematical laws. The second kind of necessity seems different in kind to the first. Let us call those kinds of modality that seem unnatural and gerrymandered, *contrived* modalities, and the more familiar kinds (such as metaphysical, mathematical, natural, and normative necessity) *non-contrived* modalities. Fine marks the difference by allowing at least three fundamental kinds of (non-contrived) necessity, which are not to be understood in terms of any other kind: metaphysical, natural, and normative necessity. Fine may face the challenge of explaining their fundamental similarity, but he has a story to tell about their distinctness from other, contrived kinds of modality.

A second, related, challenge is that these non-contrived modalities have a distinctive "modal force" which is lost when they are treated as relative modalities.

One might wish to press the objection further and claim that no definition stated entirely in terms of metaphysical necessity could capture the peculiarly modal force of truths that are naturally

necessary yet metaphysically contingent. Just as it has been supposed that there is a conceptual barrier between normative and non-normative concepts, so one might think that there is a conceptual barrier, not merely between modal and non-modal concepts, but also between different ‘grades’ of modality. (Fine, 2005, pp. 247–8)

Fine seems to want to say that a naturally necessary truth, say, is necessary in a peculiar way that cannot be captured in terms of a relativization of another kind of necessity. He then goes further in suggesting that there might be a conceptual barrier between different fundamental kinds of (non-contrived) modality, making it impossible for us to be able to understand one in terms of another.

We have two related challenges, then, to account for important differences between kinds of modality: the differences between *contrived* and *non-contrived* modalities; and the differences between the peculiar modal character or “modal force” of the most fundamental non-contrived kinds. These are set in opposition to the challenge to explain important and fundamental similarities between different kinds of modality.

The *first* challenge, of drawing a distinction between contrived and non-contrived modalities, I take to also apply to Fine’s own theory. Fine takes metaphysical necessities to be *de re* necessities true in virtue of the natures of things. Logical, conceptual and mathematical necessities are defined as restrictions on metaphysical necessity. E.g., conceptual necessities are those necessities true in virtue of the nature of concepts, where concepts are a sub-class of all things. But, one might ask, why are some sub-classes, and the necessities to which they correspond, more important, less trivial, than some other classes? E.g., one might define red necessity as being true in virtue of the nature of red things. Whilst it is metaphysically necessary that something cannot be red all over and green all over, it might be argued that it is also “redly necessary”.

One way Fine might respond to this challenge would be to appeal to some notion of distinctive ontological categories.<sup>22</sup> *Concept* and *entity* might both count as ontologically distinctive categories of things, thus justifying Fine in taking conceptual necessary and metaphysical necessity as important and non-contrived. However, this kind of appeal may force Fine to include kinds of necessity as non-contrived which he does not include in his system. E.g., the following seem to also be good candidates for distinctive ontological categories: *physical object*, *colour*, *event*, *abstracta*, but kinds of modality such as “event necessity”, “colour necessity” and “*abstracta* necessity” are not the standard kinds which Fine wants to pick out as special. So it seems that the challenge still stands.

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<sup>22</sup>Thanks to Fabrice Correia for this suggestion

A relative view could respond by giving an account of why the propositions to which a modality is relative constitute an important class, such that the importance of the kind of modality is inherited from the base class. Take the case of legal necessity as an example of non-contrived necessity. All the UK laws form a fairly homogeneous class of propositions, sharing key properties such as being on the statute book or being decided upon via a particular process. That these propositions share these properties makes the propositions which follow from and are compatible with them very important for anyone who is interested in UK law. By this strategy, one would likewise hope to be able to tell a story about why the propositions from which, e.g., metaphysical necessities, or natural necessities, follow are significant classes, as opposed to more random classes giving rise to contrived modalities. In arguing that a theory such as Fine’s also faces the challenge to draw a distinction between contrived and non-contrived modality, I do not deny that a relative modality view must also address it. It is not a deciding factor between the two different kinds of views. Fine could also avail himself of a similar move, e.g. by giving an account of why the class of concepts is more natural and important than the class of red things. But at least he is not any better or worse off than the relativist.

Regarding the *second* challenge, it is not clear what Fine has in mind. What is this “modal force” that he claims is peculiar to each fundamental kind of modality? One might understand this in terms of principles obeyed by a kind of modality, e.g. we might explain the difference between metaphysical and normative modal force in terms of the fact that the former kind of necessity implies truth (is factive), the latter not. But this doesn’t help with Fine’s distinction between the peculiar modal forces of metaphysical and natural necessity. One assumes that they obey the same principles (e.g. S5). It would appear that modal logical systems do not cut fine enough to capture those kinds of modality which Fine wants to claim are peculiarly different. Even if it turned out that the crucial kinds of modality did differ logically in this way—e.g. perhaps metaphysical necessity obeys an S5-system, where natural necessity obeys only an S4-system—the point remains that a difference in *logical strength* does not immediately imply a difference in *kind*. A necessity operator is still a necessity operator, whether it be defined in an S4-system, an S5-system, or any other system. Yes, one is able to “do more” with one than the other, but this does not show that they are fundamentally or peculiarly *different*.

What about a difference in scope? Fine claims that metaphysical necessity is *de re*, whereas natural necessity is *de dicto*. However, this is no good as an indicator of peculiar modal force, as he also claims that normative necessity is both *de dicto*, and fundamentally distinct from natural necessity. The combination of factivity (or not) and scope is more promising: for Fine, natural necessity is *de dicto* factive, metaphysical necessity is *de re* factive, and normative necessity is *de dicto* non-factive. But this still leaves Fine

unable to distinguish between, e.g., logical, conceptual and metaphysical necessities. Fine does take logical, conceptual and mathematical necessities to be restrictions of metaphysical necessity, so he would presumably just take them to have the same peculiar “modal force”. However, it seems strange to claim that natural necessity and metaphysical necessity have peculiarly distinct kinds of modal force, to the extent that there may be some kind of conceptual barrier between them, whilst taking what are *prima facie* notably different kinds of necessity—logical, conceptual, metaphysical, mathematical—and allowing that they have precisely the same modal force. This is a very wide gulf, which seems to me to be under-motivated.

Fine does try to explicate the idea of peculiar modal force further.

There appears to be an intuitive difference to the kind of necessity attaching to metaphysical and natural necessities (granted that some natural necessities are not metaphysical). The former is somehow ‘harder’ or ‘stricter’ than the latter. If we were to suppose that a God were capable of breaking necessary connections, then it would take more of a God to break a connection that was metaphysically necessary than one that was naturally necessary. (Fine, 2005, p. 259)

The idea is that metaphysically necessary connections are “harder to break” than naturally necessary connections. I don’t see that this makes the notion of modal force any less mysterious. First, the relation between strength and modal force is not clear. Why not say that natural necessity is a kind of necessity with the same *kind* of modal force as metaphysical necessity, but with different *strength*? Second, this difference in strength can be explained without appeal to the obscure notion of “modal force”. E.g., if metaphysical necessity is relative to principles governing all things, but natural necessity is relative to principles governing physical objects and processes, it might seem natural to conclude that metaphysical necessity will be the stronger kind given its wider subject matter, but not due to a different force.

Fine also attempts to explicate the idea in terms of a “conceptual barrier” between natural and metaphysical necessity, analogous to the conceptual barrier between the modal and non-modal. I suspect, however, that this serves only to bring out a misrepresentation of a relative modality view. Fine presses his objection against a definition of natural necessity ‘stated entirely in terms of metaphysical necessity’. It seems unsurprising that if we only have the concept of metaphysical necessity at our disposal, we will be unable to talk about much more than metaphysical necessity. Likewise, if we only have the concept of logical necessity at our disposal, we will be unable to talk about anything else. Granted, if the definition were phrased *entirely* in terms of another kind of necessity, this might pose a problem. But this isn’t the case. The definitions proposed importantly include a set of propositions to which a kind of necessity is relative, and a predicate

describing important features of those propositions (e.g. that they are laws of physics). The definitions are only partially in terms of logical necessity; they are also in terms of a key set of propositions of a certain kind.

The simple answer to Fine's challenge is thus that the "peculiarity" of each kind of modality is parasitic upon them being related to different kinds of propositions. Perhaps I have misunderstood Fine's objection, and hence have not succeeded in answering it, but given its obscurity the onus seems to fall on Fine to provide a more precise formulation of the objection which cannot be avoided by my proposal. Note also, if Fine persists with this kind of challenge, then he will exacerbate the opposing challenge to explain what the peculiar modal forces of, e.g., metaphysical and natural necessity have in common.

With mechanisms in place to explain the differences between different modalities, namely by considering the base classes of propositions to which different modalities are relativized, one can respond to Fine's objections, and indeed turn them back against his own view. This leaves the third challenge, of explaining the similarity between different modalities. The relative modality view has an easy answer; they are all relative forms of one kind of modality (logical modality).

Note that this kind of argument does not immediately respect a distinction between veridical and non-veridical modalities. The idea is that *all* "must"s and "can"s share a common core. If it turns out that a principled distinction has to be made between epistemic-style and alethic modalities, this may weaken the argument, however, if e.g. one takes alethic modalities to be relative forms of a Classical logic, but epistemic-style modalities to be relative forms of a Relevant logic, perhaps there is still room to account for the common core in terms of all modalities being relative forms of logical necessity, albeit slightly different forms of logical necessity. Also, it may be fair to say, given the considerations in section 1.2, that alethic modalities, concerned with ways of being true, and other modalities which are importantly connected to our attitudes, are indeed sufficiently different to warrant different treatment.

### 1.3.3 The Argument from Unreality

An additional argument for relative modality is rather obscure, and relies on some significant background assumptions and preferences. However, I will briefly run over the argument, in anticipation of some discussion that appears later. In chapter 2 I will consider the view that some logical possibilities are "not real" or not "genuine" possibilities. Whereas a kind of possibility such as metaphysical possibility provides a genuine guide to how the world could be, the idea is that mere logical possibility falls short. E.g., it is a logical possibility that water not be H<sub>2</sub>O, but it is often assumed that this is not a genuine way the world could be. Now, if there is a case

to be made for logical modality being somehow “not real”, but if there is nevertheless a good account of logical modality to be had, and if we take other kinds of modality to be relative forms of logical modality, this may allow one to say that modality is not a genuine, real feature of the world. If one already has reasons for doubting the “reality” of modality, then one might find this line of thought attractive.

The argument goes:

1. Some logical possibilities are “not real” (therefore, logical modality is “not real”).
2. There is a good (non-relative) account of logical modality.
3. All other forms of modality (i.e. non-logical (alethic) modalities) are relative forms of logical modality.
4. Therefore (alethic) modality is not a genuine, real feature of the world.

(3) is just the relative modality view. (2) is a condition on making the relative modality view viable, as was mentioned above.

The view that some logical possibilities are not genuine possibilities, (1), has become fairly common, based on the thought that overly restrictive necessities, such as narrow logical necessities, should be counted as necessities “in name only”.

But those ‘possibilities’—such as the austere logical possibility that there are male vixens—are possibilities *in name only*, not *real* or *genuine* possibilities at all. (Hale, 1996, p. 100)

The essentialist is simply at pains to maintain that any logical possibilities outside the domain of the metaphysically possible have no bearing on the ways the world might be. Such merely logical possibilities are possibilities in name only. (Shalkowski, 1997, p. 49)

At first glance, it appears that logical *necessity* should remain unaffected: one certainly still expects logical necessities to be true, and hence to give a reliable guide to ways the world must be. However, one may begin to doubt whether we can call logical necessity “real” if we allow that logical possibility and necessity are interdefinable as duals, i.e.  $\Box p \Leftrightarrow \neg \Diamond \neg p$  and  $\Diamond p \Leftrightarrow \neg \Box \neg p$ . If it is logically necessary that  $p$  just when it is not logically possible that  $\neg p$ , and we have agreed that logical possibility is not a genuine guide for ways for the world to be, why should we be confident that logical necessity thus described is a “genuine” modality?

It is still not clear why logical modality’s failing to be “genuine” in this way should render it impotent to inform accounts of other kinds of necessity.



E.g., one might give an account of logical modality in terms of something like the laws of thought: rules for correct thinking, or norms against which one's activity is subject to evaluation if it is to count as thinking at all.<sup>23</sup> It is not clear why one would expect a kind of modality based on such a general notion to provide a guide for ways the world could be. Thinking a certain thing may be perfectly permissible according to these standards, but something more seems to be required to ensure that such a thing could exist: e.g. *thinking about* water which is not H<sub>2</sub>O avoids the vice of contradiction, but whether or not there could *be* such a thing might also depend upon facts about substances.

We can now see how this line of thought relates to (4). One might be reluctant, for independent reasons, to take *modality tout court* to be a genuine, objective, mind-independent, robustly real feature of the world. Things such as modal properties, modal facts, possible objects and the like certainly have an air of mystery. What is their nature? How can we gain epistemic access to them? If I perceive that Tibbles is a cat, and Tibbles is necessarily a cat, do I also perceive Tibbles's necessary-cat-hood, or just his cat-hood? One way to resolve these questions is to deny that there are such modal things, and explain modality in a different way. Now, if one endorses (1), that logical modality is "unreal" in some important sense, and one holds a relative view, encompassing (2) and (3), then one will have a strategy for reducing all (or at least all alethic) "real" kinds of modality to mere logical, non-real modality. Something like, e.g., natural necessity will still count as real insofar as the propositions which follow from laws of nature, say, do have a bearing on ways the world can be, however, the modality in this is not strictly a real phenomenon, but only borrowed from logical modality which does not itself have such bearing on the world. One could say that the common core shared by all kinds of modality is logical modality, which cannot provide a genuine guide for ways for the world to be alone, but which can be relativized to propositions about the world such that their logical consequences and compatibilities are able to chart so-called "real" possibilities.

Again, I must stress that this is clearly not a conclusive argument. However, given a certain agenda, and the assumption that logical modality is not a genuine or real kind of modality, one should be motivated to explore a relative theory of modality.

### 1.3.4 New Jersey Necessity

One challenge to the kind of relative modality view I want to endorse has been raised by Rosen (2006), who complains that what I am calling contrived necessities are not rightly called "necessities" at all.

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<sup>23</sup>See chapter 3.

The trouble is that most such ‘restricted necessity operators’ do not correspond to genuine species of necessity. Let NJ be the complete intrinsic truth about the State of New Jersey, and say that  $P$  is NJ-*necessary* just in case NJ strictly implies  $P$ . It will then be NJ-necessary that Rosen is in Princeton, but NJ-contingent that Blair is in London. But of course we know full well that there is *no sense whatsoever* in which I have my location of necessity while Blair has his only contingently. So NJ-necessity is not a species of necessity.

The moral is that one cannot in general infer, from the fact that a certain *consequence* ( $\phi \rightarrow P$ ) holds of necessity, that there is *any* sense in which the *consequent* ( $P$ ) holds of necessity. (If there were then *every* proposition would be necessary in a sense, even the contradictions.) (Rosen, 2006, p. 33)

Rosen argues that in the case of contrived necessities, there is no such sense of necessity, so any account which allows for contrived necessities must be wrong.

Rosen’s point is in conflict with the kind of arguments discussed earlier, such as those in Kratzer (1977), which draw on the multiplicity of “must”s in our language use. The point was that there are so many different meanings we can give to words like “must” and “can” that we need to give the words a relative semantics to accommodate such a profusion. In contrast, Rosen’s argument is based on an assumption that we have only a few senses of necessity, which do not stretch far enough to accommodate notions such as NJ-necessity. Who is right? Can we imagine a plausible situation in which someone would genuinely wish to assert something of the form, “In view of the complete intrinsic truth about the State of New Jersey, it must be that  $p$ ” or “In view of the complete intrinsic truth about the State of New Jersey, it can be that  $p$ ”? Here are some suggestions:

- Suppose that the inhabitants of New Jersey happen to be rather traditional, and often have cold heads, resulting in the fact that everyone in New Jersey wears a hat. So it would be NJ-necessary that everyone wears a hat. One can imagine a newcomer to the state looking around at first, and saying to himself, “I must wear a hat”. This depends only on truths about New Jersey (e.g. it does not draw upon truths about Ohio), and it does not obviously seem to be a wider kind of necessity (it might be true in New Jersey that necessarily  $2 + 2 = 4$ , but we would not usually say that with NJ-necessity in mind).
- New Jersey is an entity which is not independent of human society, e.g. its borders were determined by us, and the fact that it is a state also depends upon us. This suggests that we can include the laws of New Jersey in the complete intrinsic truth about New Jersey. If there is a

law unique to New Jersey, then any modal statements drawing on that law (“You must not. . .”) could be described as invoking NJ-necessity.

- I am writing a play, partly set in New Jersey. In my play, I want to hold true anything to do with the complete intrinsic truth of New Jersey, but I don’t care about anything else being accurate. I don’t have any particular plan for what kind of situations I want to have happen, as long as I respect New Jersey facts. Whilst writing one scene I say to myself, “Rosen must be in Princeton (given the complete intrinsic truth about New Jersey), but in that other scene, Blair can be in Paris”.

Even if one can describe strange circumstances in which rather contrived senses of “must” can be found, what about the most arbitrary cases, where we might define a kind of necessity as relative to three random propositions? Surely there is no intuitive sense of necessity we can bring to bear here? This forces one to look again at Rosen’s objection.

Rosen finds the conclusion that every proposition is necessary in some sense to be unacceptable, and so concludes that a relative modality account is wrong. However, it is open to the relative modality theorist to simply agree that yes, most propositions are necessary in some sense, but perhaps in a very uninteresting sense. Kinds of necessity such as necessity relative to truths about my left shoe together with truths about velcro can be dismissed as likely to be uninteresting, because the set of propositions to which they are relative is not an interesting grouping. But this is still a kind of necessity. As for *every* proposition being necessary, *including contradictions*, it is not clear what Rosen has in mind. Presumably he has in mind the idea that every proposition follows from itself, even contradictions. I have discussed problems arising from inconsistent sets of propositions above: at least this case should not occur for any alethic necessity.

The relative modality theorist might also diagnose Rosen’s worry as being, not about necessity, but about what makes a kind of necessity count as non-contrived. Rosen is probably right to say that there is no non-contrived sense of necessity in which he has his location of necessity while Blair has his only contingently. But this is a claim about non-contrived necessities, and there are two parts to this notion: *necessity*, and *being non-contrived*. On the relative modality view, it seems that our familiar notions of necessity—metaphysical, natural etc.—are in danger of losing some kind of special status. A stark way to put (the widest version of) the view is that there is only logical modality; any other purported kind of modality is merely logical modality, relativized to some propositions. To raise our familiar notions out of the mire, we can tell a story about why they, as opposed to other shadows of logical modality, are more important. E.g., physical modality is special because it is relative to physical laws, which constitute an important class of propositions, or because it provides a reliable guide to how things can

and must be in the physical world. On the relative modality view, relative necessity becomes such a weak notion that the more important feature of a kind of necessity is really the operator  $\Psi$  applying to  $\varphi$  (see section 1.1.5 p. 25). Rosen mistakes the lack of a good story to tell about the complete intrinsic truth about New Jersey as the lack of any necessity.

It should be added that, after all, Rosen has not definitively shown that there can be no good sense for even a kind of necessity which is relative to 3 randomly-selected propositions. He has just pointed out that it is difficult, and so we tend to assume that there is none. Who is to say that one day things won't be such that NJ-necessity, or *pqr*-necessity, develops into an important sense of necessity? The relative modality view at least has room to accommodate this kind of eventuality. Such necessities may always be available, but it is only when the defining predicate of the propositions to which they are relative gains prominence that they will be brought to the fore.

### 1.3.5 Finean Counterexamples

Another critic of the kind of relative modality view I wish to defend is Kit Fine. I have already discussed his arguments that relativization leads to trivialization and that such views fail to capture the distinctive modal force of certain kinds of modality (cf. section 1.3.2). I will consider one final challenge from Fine.

One of Fine's targets is the view that a proposition is a naturally necessary truth if and only if it is logically necessary relative to or conditional upon the basic truths about the status and distribution of natural properties and relations. From the perspective of the actual world, if another world has alien kinds or properties, then it is not naturally possible. If something that looks to be a familiar kind in fact behaves according to different laws of nature, 'in a nomically irregular way', then it is an alien kind mistaken for our familiar kind.

Note, Fine is considering a particular version of a relative view of natural necessity, namely, the base propositions are *non-nomic facts* about the status and distribution of natural kinds, properties and relations in a world. Fine says nothing about a view where the base propositions are nomic facts, viz. a view upon which the natural necessities are logical necessities relative to or conditional upon *the laws of nature*. I take it that Fine is assuming a view whereby the distinctive feature of laws of nature just is *to be naturally necessary*, thus preventing one from taking them as the relative basis for natural necessity on pain of triviality. Hence the choice of non-nomic facts instead. But if one had a different account of the distinctive feature of the laws of nature, they might still be trivially naturally necessary (in virtue of following from themselves), but they would not thereby be trivially *laws of nature*. If Fine's argument is successful, he will block one avenue for giving

an account of the base propositions to which natural necessity is relative (laws *defined as* necessities), but he leaves open the possibility of giving a different account of the base propositions.

It can already be seen that the scope of Fine's challenge here is limited. But is the challenge any good? Fine sets up two examples intended to demonstrate circumstances according to which two possible worlds differ merely as to what is a natural necessity, and *not* as to the status and distribution of natural kinds, properties and relations. Therefore, the latter does not adequately determine the natural necessities and possibilities.

The first example concerns worlds  $W_N$  and  $W_M$ .  $W_N$  is a metaphysically possible world that is subject to Newtonian laws of nature, containing mass.  $W_M$  is a metaphysically possible world that is subject to different laws of nature, call them Schmewtonian laws (say, the inverse cube law), containing schmass. Neither set of natural laws demands that there be anything, therefore there are two further metaphysically possible worlds,  $V_N$  and  $V_M$ , which are empty.  $V_N$  is a natural possibility for  $W_N$ , and so verifies the natural necessities for  $W_N$ .  $V_M$  is a natural possibility for  $W_M$ , and so verifies the natural necessities for  $W_M$ . In terms of the status and distribution of their natural kinds, properties and relations,  $V_N$  and  $V_M$  are completely alike; they are both empty. However, they differ in terms of their natural necessities, and hence also their natural possibilities. Therefore, worlds  $V_N$  and  $V_M$  are an example of two worlds which differ merely as to what is a natural necessity (see Fine (2005, pp. 244-5)).

I do not find this purported counterexample convincing. It requires that there be two, distinct empty worlds. If the worlds are empty, what are the grounds for claiming there are two? Why not say there is just one empty world which is a natural possibility for both  $W_N$  and  $W_M$ ? Call this world  $V_*$ . Fine suggests that

A possible world is a natural possibility relative to a given world if it contains only (or perhaps all and only) those natural kinds that exist in the world. (Fine, 2005, p. 243)

Fine adds the caveat that, to avoid questions about when a kind can be said to exist, one can put the definition in terms of instantiation of kinds. In any case, it is true that  $V_*$  instantiates only kinds instantiated in  $W_N$  and only kinds instantiated in  $W_M$ , in virtue of instantiating no kinds at all. Therefore,  $V_*$  is a natural possibility relative to  $W_N$  *and* it is a natural possibility relative to  $W_M$ . Fine would now claim that  $V_*$  therefore verifies the natural necessities for both  $W_N$  and  $W_M$ , but these are different. So it looks like it will be true at  $V_*$  that it is naturally necessary that bodies behave according to the inverse cube law *and* that it is not naturally necessary that bodies behave according to the inverse cube law.

Now, there was no *prima facie* reason to think that an empty world such as  $V_*$  could not exist, indeed, if  $V_N$  and  $V_M$  are acceptable, then surely

$V_*$  should be too. And according to the definition of what it is to be a natural possibility,  $V_*$  counts as a possibility for both  $W_N$  and  $W_M$ . I think the problem can be resolved by introducing a distinction between different “natural necessities”. Suppose that there are some kinds of necessity which are defined as relative to or dependent upon the status and distribution of natural kinds, properties and relations at a world. For each distinct status and distribution of natural kinds, there is an associated necessity. This family of necessities, sharing as they do the feature that they depend upon natural kinds and relations etc., might be called the natural necessities. But the idea of one, unique kind of necessity which is “natural necessity” is set to one side.

One consequence of this way of looking at things, is that a world  $W_2$  which is a “natural possibility” for a world  $W_1$  should not in general be expected to have the same “natural necessities” as  $W_1$ .  $W_2$  might be a possibility for/be accessible to  $W_1$  relative to the natural kinds etc. at  $W_1$ . An imprecise way of recounting this is to say that  $W_2$  is a natural possibility for  $W_1$ . And there will be certain necessities relative to the natural kinds etc. at  $W_2$ , which might imprecisely be referred to as the natural necessities for  $W_2$ . But this talk of natural possibilities and natural necessities has obscured the fact that we are talking about two different modalities here, albeit modalities which are relative to similar things. Of course,  $W_2$  may still verify  $\text{natural}_{W_1}$  necessity, but it will also have its own, distinct, natural necessity,  $\text{natural}_{W_2}$  necessity.

With this distinction between different necessities of the “natural” family in place, one can work through the example and see that there is no reason to posit two empty worlds, rather than one. Consider again worlds  $W_N$  and  $W_M$ . Neither set of natural laws demands that there be anything, therefore let us posit an empty metaphysically possible world,  $V_*$ .  $V_*$  is a  $\text{natural}_N$  possibility for  $W_N$ , and so verifies the  $\text{natural}_N$  necessities for  $W_N$ .  $V_*$  is a  $\text{natural}_M$  possibility for  $W_M$ , and so verifies the  $\text{natural}_M$  necessities for  $W_M$ . Suppose, for some  $p$ , that it is  $\text{naturally}_N$  necessary that  $p$ , but that it is not  $\text{naturally}_M$  necessary that  $p$ . There is now no problem of clashing necessities at  $V_*$ . We do not have a case where it is both  $\text{naturally}_N$  necessary that  $p$  and not  $\text{naturally}_M$  necessary that  $p$  at a world, forcing us to posit two separate worlds ( $V_N$  and  $V_M$ ) to avoid contradiction. We simply have two different kinds of necessity. Our empty world verifies at least two kinds of necessity from the “natural necessity family”,  $\text{natural}_N$  necessity and  $\text{natural}_M$  necessity. It may, in addition, verify its own very minimal brand of  $\text{natural}_*$  necessity.

One diagnosis of the situation is that Fine has assumed that only one kind of natural necessity can be verified at a world. However, I contend that, if we take natural necessity to be a kind of necessity dependent upon some status and distribution of natural kinds, properties and relations, then there might be many such necessities verified at a world. However, we can

allow that each world verifies a kind of necessity based upon the status and distribution of *its own* properties and relations, which is a privileged natural necessity at that world. There is only one *privileged* natural necessity in each world, although there may be many more others verified as well. Fine took natural<sub>N</sub> necessity and natural<sub>M</sub> necessity to be incompatible kinds of necessity, but I have shown how the example can be understood such that they can both be verified at world  $V_*$ , along with  $V_*$ 's own privileged natural necessity. In short, the natural necessities for a world may be relative to the status and distribution of natural properties and relations at that world. But this does not rule out other natural necessities, which are relative to the properties and relations at other worlds, being verified at that world. They may not be *the* natural necessities for that world, but they may still be legitimate necessities.

Does this all this turn on some worlds being empty? No. Fine introduces his second counterexample to address this concern. This example concerns worlds  $W_D$  and  $W_E$ .  $W_D$  is a metaphysically possible world in which mind-body dualism and epiphenomenalism are both true.  $W_D$  contains mental<sub>D</sub> and physical<sub>D</sub> events, which are 'each subject to their own laws, but with no nomological interaction between them' (2005, p. 245).  $W_E$  is also a metaphysically possible world in which mind-body dualism and epiphenomenalism are both true. Its physical events are subject to the same laws as  $W_D$ , i.e. it contains physical<sub>D</sub> events, but its mental events are subject to different laws, call them mental<sub>E</sub> events. Neither set of natural laws for the two worlds demand that there exist any minds or mental events, therefore there are two further metaphysically possible worlds,  $V_D$  and  $V_E$ , which are mind-free, i.e. they contain no mental events.  $V_D$  is a natural possibility for  $W_D$ , and so verifies the natural necessities for  $W_D$ .  $V_E$  is a natural possibility for  $W_E$ , and so verifies the natural necessities for  $W_E$ . In terms of the status and distribution of their natural kinds, properties and relations,  $V_D$  and  $V_E$  are completely alike; they contain only physical<sub>D</sub> things. However, they differ in terms of their natural necessities, and hence also their natural possibilities. Therefore, worlds  $V_D$  and  $V_E$  are an example of two worlds which differ merely as to what is a natural necessity.

By the same line of reasoning as before,  $V_D$  and  $V_E$  will differ on what is a natural possibility (for the mentalistic part of the world), even though there is no difference in the 'status' or distribution of their natural properties. (Fine, 2005, p. 245)

This second example assumes that, in a dualist, epiphenomenal world, the laws governing mental events would be relevant to natural necessity. Surely only the laws governing physical events are relevant? Dualist-style immaterial minds do not strike one as being a part of the natural world, even if they exist. This would undermine the counterexample, however, one can rescue it by taking it to be about a wider kind of natural necessity where "the

natural world” includes the realm of the mental. But then this just asks us to consider worlds which are empty of a significant portion of natural kinds and properties. A similar response to the first example can therefore be applied here, *mutatis mutandis*. One need only suppose that there is a world  $V_{\S}$  containing only physical<sub>D</sub> events.  $V_{\S}$  is a natural possibility relative to  $W_D$  and relative to  $W_E$ .  $V_{\S}$  has its own natural necessity, which supervenes on the status and distribution of its own natural kinds, properties and relations. In addition,  $V_{\S}$  verifies natural<sub>D</sub> necessity and natural<sub>E</sub> necessity, given that it is a natural possibility for worlds  $W_D$  and  $W_E$ .

If my response is successful, then the counterexamples fail. Each world may have its own natural necessity, relative to the status and distribution of natural kinds etc. at that world. In addition, a world may verify other necessities, relative to the status and distribution of natural kinds etc. at other worlds, but this does not imply a situation whereby *the same* status and distribution of natural kinds may give rise to different necessities. There is thus no threat to a relative modality view. But recall, even if Fine’s counterexamples were successful, they would only bar one from a view where natural necessity is relative to *non-nomic* facts.

One might worry about the following case. Suppose that it is naturally<sub>M</sub> necessary that  $p$  and naturally<sub>N</sub> necessary that  $\neg p$ . On the assumption that the empty world  $V_*$  verifies both the natural<sub>M</sub> necessities and the natural<sub>N</sub> necessities, and the factivity of natural necessities in general, both  $p$  and  $\neg p$  will hold at  $V_*$ , which is impossible. This may look like a pretty decisive problem for my proposal, however, it is not clear whether one can plausibly expect the case where it is naturally<sub>M</sub> necessary that  $p$  and naturally<sub>N</sub> necessary that  $\neg p$  to genuinely occur. Recall, these natural necessities are intended to be defined in terms of the status and distribution of natural kinds, properties and relations. If you have different kinds of things—e.g. schmases rather than masses—not only will you have different natural necessities, but your necessities will concern different things, e.g., natural<sub>N</sub> necessity tells us about the behaviour of mass, whereas natural<sub>M</sub> necessity tells us about the behaviour of schmass. So, e.g., even if it is naturally<sub>N</sub> necessary that mass is  $F$ , and naturally<sub>M</sub> necessary that schmass is not  $F$ , in  $V_*$  this will not lead to a case of  $p \ \& \ \neg p$  ( $Fa \ \& \ \neg Fa$ ) but only to a case of  $Fa \ \& \ \neg Fb$  (or even  $Fa \ \& \ \neg Gb$  if the same natural property also cannot carry over). What we want is the two necessities to yield a flat-out contradiction.

The following might look like the right kind of case. It is plausible to suppose that the relevant natural necessities and possibilities arising from  $W_N$  and  $W_M$  include:

- It is naturally<sub>N</sub> necessary that there is no schmass.
- It is naturally<sub>N</sub> possible that there is mass.
- It is naturally<sub>M</sub> necessary that there is no mass.
- It is naturally<sub>M</sub> possible that there is schmass.



All these will then be verified at  $V_*$ . But, again, although at first glance this may not look right, there is no contradiction to be yielded. There is no contradiction of the form  $\Box p \ \& \ \neg\Box p$ : one can only infer instances of the perfectly acceptable  $\Box_1 p \ \& \ \neg\Box_2 p$ . Given the factivity of natural necessity, we can infer that in  $V_*$  there is no mass and no schmass. But this is hardly news:  $V_*$  is empty.

What we really need is two worlds containing the same natural kinds etc., but where they behave differently. But in such cases it will always be debatable whether they really are the same things. I thus conclude that we have no good reason to believe that there are genuine cases where it is naturally<sub>N</sub> necessary that  $p$  and naturally<sub>M</sub> necessary that  $\neg p$ . My proposal stands undamaged.

There is another worry one might raise, in terms of accessibility relations between the worlds.<sup>24</sup> Natural necessity is standardly taken to validate an S4 system, and the accessibility relation for natural modality is accordingly taken to be (reflexive and) transitive.  $V_*$  is a natural possibility for  $W_N$ , so  $V_*$  is naturally-accessible from  $W_N$ .  $V_*$  is a natural possibility for  $W_M$ , so  $V_*$  is naturally-accessible from  $W_M$ . We have been told that because  $V_*$  is a natural possibility for  $W_M$ , it therefore verifies the natural necessities of  $W_M$ , so from this it will follow that  $W_M$  is a natural possibility for  $V_*$ , and that  $W_M$  is naturally-accessible from  $V_*$ . Taking “ $x \Rightarrow y$ ” to signify natural accessibility from  $x$  to  $y$ , we have  $W_N \Rightarrow V_*$  and  $V_* \Rightarrow W_M$ . If the accessibility relation is transitive, it follows that  $W_N \Rightarrow W_M$ , which is false. The example was set up to ensure that they are worlds with different natural necessities, possibilities, laws etc. One way out of this problem would be to deny that the natural accessibility relation is transitive, and hence reject the view that natural necessity validates S4. However, this challenge to my reply to Fine is misguided, and hence does not need such a radical response.  $V_*$  is *naturally<sub>N</sub>-accessible* from  $W_N$ , and  $V_*$  is *naturally<sub>M</sub>-accessible* from  $W_M$ . The same line of reasoning can lead one to conclude that  $W_M$  is *naturally<sub>M</sub>-accessible* from  $V_*$ , but it does not follow from this that  $W_M$  is accessible from  $W_N$ , with respect to either of the kinds of natural necessity mentioned (we only have  $W_N \Rightarrow_N V_*$  and  $V_* \Rightarrow_M W_M$ ). So there is no unwelcome accessibility which should invite one to reject transitivity.

The foregoing has left open a number of important questions and issues which need to be properly addressed if a viable and competitive account of relative modality is to be defended. I will address at least some of these in the remainder of the thesis. In the next chapter I will look more closely at challenges raised for the relative modality view by essentialists and essentialism in general.

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<sup>24</sup>Thank you to the participants of the NIP/IP Graduate Conference 2010, and in particular to Sònia Roca Royes, for drawing my attention to this.

## Chapter 2

# Essentialism and Relative Modality

The relative modality view (RM) disagrees in many respects with essentialism about modality. A significant point of disagreement is over absolute necessity: RM takes logical necessity to be absolute and metaphysical necessity to be relative, where essentialism takes metaphysical necessity to be absolute, and logical necessity to be absolute only insofar as it is a subspecies of metaphysical necessity. My proposed view takes logical possibility to be an important kind of modality, where essentialists often dismiss mere logical possibility as not being genuine possibility, or possibility “in name only”. There are also challenges raised when it comes to the kind of account RM can accept of logical modality, such that RM is not undercut by an account which places metaphysical necessity as prior to logical necessity. In this chapter I will assess some of the particular objections raised against the kind of view I want to defend, as well as some more general lessons essentialism has for RM.

### 2.1 Absolute Necessities

A number of points arising from work by Shalkowski present challenges for RM. These challenges are largely directed against the view that Shalkowski takes Hale to have endorsed in his 1996 paper “Absolute Necessities”, so in order to properly understand the criticisms, one must first look at the arguments presented in that paper. It will turn out that Shalkowski’s criticisms when directed against Hale are not entirely fair, but can be refocused to present genuine challenges for RM.

Hale (1996) begins by introducing a notion of relative necessity, in terms of there being some other sense of possibility available such that the negation of a candidate  $\phi$ -necessity is possible according to this other sense. It is not *absolutely* impossible: there is a sense in which it is possible. As this is a

different notion of relative necessity to that I have been discussing so far, I will refer to Hale’s notion of relative necessity as “relative<sub>H</sub> necessity”, and use his expressions “ $\phi$ -necessity” and “ $\phi$ -possibility”, in contrast to my use of “ $R$ -necessity” and “ $R$ -possibility”.

The relativity of  $\phi$ -necessity consists in the fact that, whilst no  $\phi$ -necessary statement can be false, provided that all the members of  $\Phi$  are true, it is not excluded that there are other senses of ‘possible’ in which the members of  $\Phi$  may be false; if so,  $\phi$ -necessity is a *merely* relative notion. (1996, p. 93)

Hale also introduces relations of relative strength between different kinds of modality, such that one kind is stronger or weaker (or at least as strong as/at least as weak as) another kind.

One kind of necessity,  $\Box_1$ , may be said to be *stronger* than another,  $\Box_2$ , if ‘ $\Box_1 p$ ’ always entails ‘ $\Box_2 p$ ’ but not conversely. Assuming the usual relations between necessity and possibility, this relationship will obtain if and only if  $\Diamond_1$  is *weaker* than  $\Diamond_2$ , i.e. ‘ $\Diamond_2 p$ ’ always entails ‘ $\Diamond_1 p$ ’ but not conversely. I shall also say that  $\Box_1$  is *at least as strong as*  $\Box_2$  if the first half of this condition is met, i.e. ‘ $\Box_1 p$ ’ always entails ‘ $\Box_2 p$ ’. (1996, p. 94)

With this in place, Hale is now in a position to ask the question whether for every kind of relative<sub>H</sub> necessity, *logical possibility* is at least one sense in which it is possible for the relative<sub>H</sub> necessity to be false.

It is not, however, given by the assumption that  $\phi$ -necessity is merely relative that the falsehood of members of  $\Phi$  is *logically* possible. We have that ‘ $\Diamond^* p$ ’ does not always entail ‘ $\Diamond^\phi p$ ’. We could close the gap, if we could show that logical possibility is at least as weak as any other kind of possibility (so that in particular, ‘ $\Diamond^* p$ ’ entails ‘it is logically possible that  $p$ ’). (1996, p. 94)

If logical possibility can be shown to be the weakest notion of possibility, and hence logical necessity be shown to be the strongest kind of necessity, then this would appear to go against those who take a notion of *metaphysical* necessity to be absolute, in the sense that ‘when it is metaphysically necessary that  $p$ , there is no good sense of ‘possible’ (except, perhaps, an epistemic one) in which it is possible that not- $p$ ’ and such that ‘metaphysical necessities hold true at all possible worlds without qualification or exception’ (Hale, 1996, p. 95).<sup>1</sup>

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<sup>1</sup>Hale immediately sets aside notions of epistemic possibility and necessity, because it seems that epistemic possibility will not always entail logical possibility (see section 1.2).

It is in this context that Hale introduces an argument inspired by McFetridge, intended to show that logical necessity is at least as strong as every other kind of (non-epistemic) necessity. In the argument, ‘ $\Box$ ’ represents the logical necessity operator; ‘ $\Diamond$ ’ represents an arbitrary possibility operator; and ‘ $\rightarrow$ ’ is to be understood as the material conditional. Five assumptions are made about  $\Box$  and  $\Diamond$ :

1. If  $\Box(A \rightarrow B)$  then  $\Box(A \& C \rightarrow B)$
2.  $\Box(A \rightarrow A)$
3. If  $\Box(A \rightarrow B)$  and  $\Box(A \rightarrow C)$  then  $\Box(A \rightarrow B \& C)$
4. If  $\Diamond A$  and  $\Box(A \rightarrow B)$  then  $\Diamond B$
5.  $\neg\Diamond(A \& \neg A)$

(1996, p. 96)

The first assumption corresponds to the familiar rule of monotonicity or weakening. The second assumption is a tautology. The third assumption corresponds to another rule of standard propositional logic. Assumption 4 allows that an arbitrary kind of possibility can be transferred across logical consequence. And assumption 5 says that in no sense of possibility can a contradiction be true.

The argument then runs as follows:

|     |  |                |
|-----|--|----------------|
| 1   | 1) $\Box(A \rightarrow B)$                     | assumption     |
| 2   | 2) $\Diamond(A \& \neg B)$                     | assumption     |
| 1   | 3) $\Box(A \& \neg B \rightarrow B)$           | 1, by A1       |
|     | 4) $\Box(\neg B \rightarrow \neg B)$           | A2             |
|     | 5) $\Box(A \& \neg B \rightarrow \neg B)$      | 4, by A1       |
| 1   | 6) $\Box(A \& \neg B \rightarrow B \& \neg B)$ | 3,5, by A3     |
| 1,2 | 7) $\Diamond(B \& \neg B)$                     | 2,6 by A4      |
|     | 8) $\neg\Diamond(B \& \neg B)$                 | A5             |
| 1   | 9) $\neg\Diamond(A \& \neg B)$                 | 2,7,8 reductio |

(1996, pp. 96–7)

Hale calls the conclusion established “McFetridge’s Thesis”.

(*McF*) If the conditional corresponding to a valid inference is logically necessary, then there is no sense in which it is possible that its antecedent be true but its conclusion false.

(See 1996, p. 97.) The argument is finished with the aid of two lemmas (see 1996, pp. 97–98 for lemma proofs):

Lemma 1:  $\Box p$  iff  $\Box((p \rightarrow p) \rightarrow p)$

Lemma 2:  $\Diamond\neg p$  iff  $\Diamond((p \rightarrow p) \& \neg p)$

Now if  $\Box p$ , then by Lemma 1,  $\Box((p \rightarrow p) \rightarrow p)$ , whence by McFetridge's thesis,  $\neg\Diamond((p \rightarrow p) \ \& \ \neg p)$  for any sense of  $\Diamond$ , so that  $\neg\Diamond\neg p$ , by Lemma 2. Thus we have:

(*Generalized McF*): If  $\Box p$  then there is no sense in which  $\Diamond\neg p$   
(1996, p. 98)

We have our conclusion that logical necessity is absolute: if it is logically necessary that  $p$ , then there is no (non-epistemic) sense in which it is possible that not- $p$ .

It is worth asking whether this conclusion can be used in arguing for the stronger thesis that, not only is logical necessity absolute in this sense, but all other kinds of necessity—the merely relative<sub>H</sub> necessities—are mere relative (in my sense) versions of logical necessity, rather than being independent kinds of necessity. I.e., what relevance does the conclusion that non-logical (non-epistemic) necessities are as least as weak as logical necessity have for the thesis that non-logical (non-epistemic) necessities are in fact mere relative kinds of logical necessity? This goes beyond the remit of Hale's argument. His result may simply show that there are interesting logical relations holding between distinct kinds of modality that are not forms of any other kind.

One may, however, wish to use Hale's result in the following way. RM entails that logical necessity is absolute, at least as it applies to alethic modalities. Recall, a proposition  $p$  is  $R$ -necessary just when  $\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$ . Now, take any kind of  $R$ -necessity. This will involve a conjunction  $\varphi$  fulfilling a condition  $\Psi$ . Logical necessities follow from any premises whatsoever. In particular, the logical necessities will follow from the conjunction  $\varphi$ , regardless of which kind of  $R$ -necessity we started out with. So for any kind of relative  $R$ -necessity, if  $\langle p \rangle$  is logically necessary, it follows that  $\langle p \rangle$  will also be  $R$ -necessary, so logical necessity is at least as strong as any  $R$ -necessity (and  $R$ -necessities turn out to also be relative<sub>H</sub> necessities). Discovering that logical necessity is absolute does not show that the relative modality account is true, but the account does provide an explanation of *why* logical necessity is absolute, i.e. logical necessity is absolute *because* all other kinds of necessity are mere relative versions of logical necessity.

This is just the beginning of Hale's paper. After giving his argument for the *Generalized McFetridge Thesis*, he considers the problem this poses for someone who takes metaphysical necessity to be absolute. First, he presents the friend of absolute metaphysical necessity with a dilemma. Granted, we have established that if it is logically necessary that  $p$ , then there is no sense in which  $\langle\neg p\rangle$  is possible, including metaphysical possibility. But nothing has been said regarding the converse, whether if it is metaphysically necessary that  $p$ , it can be logically possible that  $\neg p$ . The dilemma concerns these two options. If the converse does not hold, then metaphysical necessity is

not absolute. If the converse does hold, then both logical and metaphysical necessity appear to be of equal and absolute strength. But, ‘neither alternative is—or seems—congenial to the friends of metaphysical necessity’ (Hale, 1996, p. 98). The first horn goes against the friend of metaphysical necessity’s contention that there are no metaphysically impossible worlds, e.g. possible worlds in which water is not  $H_2O$ . The second horn does not allow the logical possibility of metaphysical impossibilities, and hence seemingly non-logical, non-conceptual truths will be included in the logical necessities, e.g., it is not logically possible for water to fail to be  $H_2O$ .

Hale’s suggested way of out the dilemma is to “blunt its first horn” by introducing a notion of “genuine” or “real” possibility, which he does via a discussion of notions of possibility narrower than the broad notion of logical possibility he has been working with thus far. Yes, some metaphysically impossibilities are logical possibilities, but these nevertheless do not count as *real* possibilities.

The moral of our discussion of austere logical possibility and its kin is, in effect, that we should recognise a kind of necessity as absolute iff there is no *real* possibility that a necessity of that kind should be false. But then why should it not be maintained that, just as certain austere logical possibilities are not genuine possibilities, and so should not be taken as showing that the associated broadly logical necessities are not absolute, so not every broadly logical possibility is a real possibility, fully apt to destroy the claim to absoluteness of a corresponding metaphysical necessity? (Hale, 1996, p. 101)

Hale thus introduces a rival picture of absolute necessity, which avoids the dilemma:

Absolute necessity is the union of broadly logical and metaphysical necessity, while real—or absolute—possibility is the intersection of broadly logical and metaphysical possibility. (1996, p. 101)

In order to be absolutely necessary,  $\langle p \rangle$  must be either broadly logically *or* metaphysically necessary, and in order to be really possible,  $\langle p \rangle$  must be *both* broadly logically *and* metaphysically possible. Such an account might seem rather unnatural, rendering absolute necessity a merely disjunctive notion. Hale thus devotes the final sections of the paper to exploring one candidate unifying theory, ‘in the light of which it is intelligible how a truth may qualify as absolutely necessary in either of these two ways’ (Hale, 1996, p. 102). This candidate theory is an essentialist theory of modality, inspired by the work of Kit Fine.

In brief, Fine’s theory is as follows. Essence is prior to modality. All things have essences. The essence of a thing is what makes it what it is,

without which it would cease to be, or lose its identity. Metaphysical modality finds its source in the essences of all things. Smaller sets of things give rise to other kinds of modality, which are restricted kinds of metaphysical modality. E.g., conceptual necessity finds its source in the essences of all concepts, and logical necessity finds its source in the essences of all logical concepts. Metaphysical necessity is *de re*, and applies to things. Fine’s essentialist theory of modality applies most clearly to metaphysical necessity and those kinds which it contains. Some other kinds of necessity are not definable at all in terms of metaphysical necessity, namely, natural and normative necessity. These kinds of necessity are *de dicto*, and find their sources in the “natural order” and the “normative order” respectively. I will discuss Fine’s view in more detail later, but this sketch should suffice for the time being. (See Fine (1994, 2005).)

This kind of essentialism is supposed to explain how both metaphysical and logical necessity can both be “absolute” as follows. Logical necessity is a restricted kind of metaphysical necessity: it has its source in logical concepts, some things, whereas metaphysical necessity has its source in *all* things. This means that the Finean actually takes logical necessity to be strictly stronger than metaphysical necessity: every logical necessity will be a metaphysical necessity, because the former is just a special case of the latter—truth in virtue of the nature of some, rather than all, things. There are truths in virtue of the natures of things other than the logical concepts, which means that there will be metaphysical necessities which are not logical necessities. However, this is where the notion of “genuine” possibility comes into play. Hale has argued that we need to be able to discount ‘possibilities in name only’. E.g., it does not matter if it is possible\* that  $\neg p$  although it is absolutely necessary that  $p$  if some possibilities\* are not genuine. So, the notion of absoluteness we are really interested in is where a kind of necessity is absolute just when there is no *genuine* sense of possibility such that, for some  $p$ , it is necessary that  $p$  in the first sense of necessity but possible that  $\neg p$  in the second sense of possibility. On this kind of essentialist view, metaphysical necessity is absolute in this stronger sense. In particular, if it is metaphysically necessary that  $p$ , then a logical possibility that  $\neg p$  will not count as genuine. But note that, as a special case of metaphysical necessity, logical necessity will also be absolute in this sense. So both metaphysical and logical necessity are “absolute”, although logical necessity is, on Fine’s view, strictly stronger.

To clarify, there are two notions of absoluteness in play.

1.  $\Box_1$  is absolute = there is no notion of possibility  $\Diamond_2$  such that  $\exists p(\Box_1 p \ \& \ \Diamond_2 \neg p)$ .
2.  $\Box_1$  is absolute = there is no notion of *genuine* possibility  $\Diamond_2$  such that  $\exists p(\Box_1 p \ \& \ \Diamond_2 \neg p)$ .

Where it counts, I will refer to the first kind of absoluteness as strict absoluteness, and the second kind as rich absoluteness.

## 2.2 Shalkowski's Critique

### 2.2.1 Against Hale

Shalkowski raises a barrage of criticisms against a view which takes logical necessity to be absolute, and other kinds of necessity to be relative to it.

The developments of formal logic, especially model-theoretic semantics, have paved the way for apparently clear accounts of the relation of logical consequence and the correlated property of being a logical truth. With one or other of these in hand, logical necessity is easily definable: A is logically necessary if and only if A is a logical truth if and only if A is a logical consequence of the axioms of logic. With logical necessity thus understood in formally manageable terms, other metaphysically significant necessities, such as physical necessity, can be defined as the logical consequences of some specified set of nonlogical axioms. The physical necessities would be, in this framework, the logical consequences of the fundamental laws of physics. . . . In what follows I argue that this received view about modalities is seriously misguided. (Shalkowski, 2004, p. 56)

His arguments are directed against this kind of view in general. They are also directed against Hale's particular arguments for the absoluteness of logical necessity. Shalkowski takes Hale's argument to be a challenge to his favoured view, essentialism, which takes 'the most general and fundamental necessity' to be *de re* metaphysical necessity, with its source in the natures of things. Hence he calls proponents of his target view "anti-essentialists". It is worth noting already that, as we have seen, alongside Hale's arguments for the absoluteness of logical necessity are arguments *in favour of* exploring just this kind of essentialism.

One can draw out several points from Shalkowski's work. First, as directed against Hale (1996):

1. Assumption 5 (A5) begs the question in favour of the absoluteness of logical necessity.
2. Hale misses the essentialist target. The essentialist argues that some logical possibilities are not genuine possibilities, not that some logical impossibilities are metaphysically possible.
3. Hale has no dialectical advantage over the essentialist.



And in general against the “anti-essentialist”:

4. One cannot give an account of metaphysical necessity in terms of logical necessity, because in order to give a proper account of logical necessity one must appeal to essentialist or metaphysically necessary facts.
5. Anti-essentialism brings along with it substantial Humean metaphysical commitments.

Let us consider them in turn.

First, A5 constitutes the assumption that, for any (non-epistemic) sense of possibility, no contradiction is possible. Shalkowski argues that this immediately rules out senses of logical possibility endorsed by proponents of paraconsistent logics.

In some well-developed paraconsistent logics, the Law of Noncontradiction fails and so, according to (logical) necessities specified in accordance with the truths of these logics, it *is* possible that there be true contradictions. Thus, (A5) is, strictly speaking, false and will not be granted by all anti-essentialists. (2004, p. 59)

Hence, assuming A5 begs the question against those who take paraconsistent logical necessity to be stronger than a less exotic brand of logical necessity.

For Shalkowski this problem is not pressing as he is interested in a debate between the essentialist and the “anti-essentialist”. As the essentialist is likely to agree with A5, this is not a point at which he can attack.

For traditionally minded essentialists, that Hale’s argument is insufficiently general is somewhat cold comfort. It does not beg the question against them after all, since they accept (A5). (2004, p. 60)

In any case, it is not clear which “well-developed paraconsistent logics” Shalkowski has in mind. One of the better known paraconsistent logics, Priest’s Logic of Paradox (*LP*) (Priest, 1979), does in fact validate the Law of Non-contradiction. For suppose  $\neg(A \ \& \ \neg A)$  was false for some  $A$ . Then  $A \ \& \ \neg A$  would be true. So both  $A$  and  $\neg A$  would be true. But given the semantics for  $\neg$ , this is impossible: if  $A$  is true then  $\neg A$  is false. So  $\neg(A \ \& \ \neg A)$  must be true. Even if  $A$  and  $\neg A$  were *true-and-false*, as is allowed in *LP*, this would only mean that  $A \ \& \ \neg A$  and  $\neg(A \ \& \ \neg A)$  would both be *true-and-false* as well. Importantly,  $\neg(A \ \& \ \neg A)$  would not be plain *false*. With a principle of necessitation (which Priest accepts), we have  $\Box\neg(A \ \& \ \neg A)$ , and hence A5,  $\neg\Diamond(A \ \& \ \neg A)$ . It is possible that there be contradictions which are *true-and-false*, but there is no room for

contradictions which are plain *true*. This is not to say that *all* paraconsistent logics validate the Law of Non-contradiction, but given this reasoning, it is hard to see how it could fail to hold. It seems that the onus is on Shalkowski to give an example of a plausible, motivated logic which allows for true contradictions.

This kind of criticism does, however, highlight the need for a principled choice of logic to underlie logical necessity. Even if most logics agree on A5, there will be other differences and disagreements. When it comes to Hale's proof, there are only a very few commitments to logical principles (the Law of Non-contradiction, weakening (monotonicity), proof by *reductio* etc.), which will be compatible with a number of different kinds of logical system, and hence with different species of logical necessity being absolute. Whatever "the right logic" turns out to be, it is likely that Hale's proof can be used to show that *it* is absolute. In terms of drawing additional conclusions from the result, if we want to make a substantive metaphysical claim to the effect that logical necessity is therefore privileged in some way, this will be no good if we haven't settled on a privileged logical system.<sup>2</sup>

Shalkowski's next criticism is that, even if Hale's argument works, it misses the essentialist target. Hale's argument purports to show *that there is no sense of possibility for which a logical impossibility is possible*. But, says Shalkowski, this is not a claim that the essentialist who takes metaphysical necessity to be absolute wants to make. In taking metaphysical necessity to be absolute, the essentialist does not wish to claim that there is some sense of possibility, namely *metaphysical possibility*, for which a logical impossibility is possible; he does not want to claim that some logical impossibilities are metaphysically possible, or that some logical necessities are metaphysically contingent. Rather, he wants to claim that those logical possibilities which are metaphysically impossible are not *genuine* or *real* possibilities. Metaphysical necessity is the absolute *genuine* necessity (richly absolute).

Metaphysical possibility is supposed by essentialists to be less permissive, not more permissive, than logical possibility. Accordingly, essentialists hold that logical possibility, as given by first-order quantificational logic with identity and perhaps any relevant nonlogical meaning postulates, overgenerates admissible formulae and counts as possible things that are not really possible. (Shalkowski, 2004, p. 61)

As a criticism of Hale (1996), this is completely misguided. Yes, it is shown that there is no sense of possibility for which a logical impossibility is possible. But Hale then immediately points out that nothing has been said about the other direction, as to whether, specifically in the case of

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<sup>2</sup>See section 3.5.5.

metaphysical necessity, there can be metaphysical impossibilities which are logically possible. There then proceeds a discussion regarding how an essentialist who endorses the absoluteness of metaphysical necessity can respond to or accommodate the Generalized McFetridge Thesis. Hale certainly does not yield his result as a weapon *against* the essentialist.

If we ignore this aspect of Shalkowski's comments, an important point does begin to emerge. First, one can take him to have presented an alternative option to the essentialist in the face of Hale's argument, namely, to make a principled distinction between genuine and non-genuine possibilities, and take absolute necessity to be the dual of the weakest *genuine* kind of possibility. Second, this point can be used as a challenge, not to Hale's views, but to RM, the kind of view Shalkowski originally lays out as his target. In order to claim that metaphysical necessity is a merely relative form of logical necessity, I will have to confront arguments for the claim that some logical possibilities are not genuine possibilities, and hence that logical possibility is not the weakest *genuine* kind of possibility and hence not absolute in the rich sense.

In the end, Shalkowski concludes that Hale has no dialectical advantage over the essentialist. He claims that both must draw a line between what they take to be genuine possibilities, and kinds of possibility which are too permissive to be metaphysically significant. The essentialist stops at possibilities based in essentialist, metaphysical truths, and draws the line to cut off conceptual and logical possibilities from reality. E.g., they count "Socrates could be fat" as a genuine possibility, but not "Socrates could have had different parents to those he actually had". The anti-essentialist draws the line further out, including broad logical possibilities, such as "Socrates could have had different parents to those he actually had", but ruling out possibilities that break analytic or conceptual connections such as "Some bachelors are married". Both sides of the debate must justify their drawing of this line.

While the essentialist must justify the verdict that some consistent sentences which violate "metaphysical postulates" fail to express real possibilities, the conceptualist must justify the verdict that some consistent sentences that violate meaning postulates fail to express real possibilities. No advantage to the conceptualist here. . . . Thus, Hale's preferred position affords no dialectical advantage over the essentialist. Each must stray from the apparent security and innocence of austere logical truth; each must justify their respective chosen limit on genuine possibility; each derives necessities largely from *a priori* investigation, with perhaps the addition of merely uncontroversial empirical information. Thus, Hale's argument fails to establish the absoluteness of logical necessity, traditionally understood. (Shalkowski, 2004,

p. 63)

Again, whilst it may be true that “the anti-essentialist” draws such a line, the point does not properly apply to Hale (1996). Hale suggests that to be genuinely possible,  $\langle p \rangle$  must be both broadly logically possible *and* metaphysically possible, so, in effect, he draws the same line as the essentialist. It may be true that this gives Hale no dialectical advantage over the essentialist, but this is simply because he is arguing for an essentialist position himself!

Again, although the criticism does not apply to Hale, it *does* seem to apply to the (anti-essentialist) view I want to endorse. Whatever logical necessity I take to be absolute, surely I can always restrict it a little further (broad to austere, austere predicate logic to austere propositional logic. . .). So a principled line needs to be drawn between an acceptable notion of logical necessity, and logical necessities which are too narrow. This is related to the previous challenge: somehow, a suitable notion of logical necessity needs to be isolated from other candidates, arising from other logical systems, and from narrower systems. Furthermore, something needs to be said regarding whether the logical possibilities associated with this notion can be relied upon to be *genuine* possibilities. Note that it is not clear whether logical possibilities need to be genuine: nothing so far appears to rule out agreeing with the essentialist that a notion of logical necessity does not always yield genuine, metaphysically significant possibilities, but nevertheless arguing that it can be used as the modality to which all other kinds of modality are relative (perhaps rendering all modality derivatively non-real, see section 1.3.3).

An important point to be clarified is what exactly it means for a kind of modality to be “genuine”, “real” or “metaphysically significant”. It seems that Shalkowski takes a metaphysically significant or genuine necessity to be a kind of necessity which will rule out as false all non-genuine possibilities.

The fundamental dispute is surely over which, if either, of these modalities correctly characterizes the necessary *truths*. It is a dispute over whether everything not ruled out as false by the relevant logical truths is a genuine possibility. (Shalkowski, 2004, p. 61)

So the onus falls onto what it is for a possibility to be genuine. I take Shalkowski’s notion of metaphysically significant possibilities to be that they have implications for “how the world might be”.

The essentialist is simply at pains to maintain that any logical possibilities outside the domain of the metaphysically possible have no bearing on the ways the world might be. Such merely logical possibilities are possibilities in name only. (Shalkowski, 1997, p. 49)

This isn't particularly illuminating, given the use of a modal term: does "might" here express a genuine sense of possibility? But it at least indicates that these possibilities have an important relation to the world.

Put this way, it is not clear why one would want logical possibility to be significant in this way. If you take the view that the field of logical possibility is wider than that of *metaphysical* possibility, one wouldn't expect logical possibility to be *metaphysically* significant. However, this does not mean that logical possibility must immediately be dismissed as insignificant *tout court*. Perhaps logical possibility has consequences for the limits of *thought*, for instance, rather than the limits of how the world might be. A related point is that, just because a notion of modality may fail to be metaphysically significant, it does not immediately follow that it cannot be used to give an account of kinds of modality which *are* taken to be significant in this way. E.g., one might argue that an account of physical necessity in terms of the logical consequences of the laws of nature will be significant precisely because of the connection to laws of nature which are metaphysically significant, not because logical necessity is or is not metaphysically significant.

### 2.2.2 Against the Anti-Essentialist

We can now move on to consider Shalkowski's more general challenges against the anti-essentialist. First, he presents a general problem for any view which takes only logical necessity to be (richly) absolute or which seeks to give an account of metaphysical necessity in terms of logical necessity. Such a project requires one to provide an account of logical modality and, it is argued, any successful such account will have to make reference to metaphysical considerations, drawing on a prior notion of metaphysical modality. Therefore, the account of metaphysical necessity will fall foul of vicious circularity.

The problem starts with a standard model-theoretic understanding of logical consequence and logical necessity. This requires making use of a domain or class of models. However, one needs to give an account of what models there are. What counts as a genuine model? What makes some candidate models admissible and some inadmissible? Shalkowski considers several alternatives open to the anti-essentialist. First he considers Platonism, by which models are abstract objects. However, it is difficult for the Platonist to show why these actual abstract objects should have any bearing on logical possibilities and necessities.

So far, all the Platonist has told us is that the actual world contains some abstract objects in addition to the concrete objects recognized by the nominalist. With respect to understanding modality this is no more illuminating than being told that there are extraterrestrial objects such as planets and comets in addi-

tion to the terrestrial objects we all know and love. (2004, p. 67)

Two further assumptions are needed.

- (i) every model represents a possibility...
- (ii) all possibilities are represented by some model.

(2004, p. 68)

Shalkowski has a number of objections against “Modal Platonism”, but the most important is that it cannot justify (i) and (ii) without making problematic metaphysical commitments.

There is nothing, though, in standard model theory that can count as justifying the two modal constraints that modal platonism requires. It is not as though model theorists have exhaustively examined objectively existing entities, catalogued their structures and their representational capacities, compared the results of this examination with considered judgments about the modal facts, and then reported back to the rest of us. (2004, p. 70)

Why think that a certain class of abstract objects succeeds in representing all and only possibilities? We cannot rely on logical principles to justify the claim, as the question is precisely whether our logical principles yield the right domain of models for modalizing. Rather

Some other necessity [other than logical] must be taken as basic to provide for some appropriate constraints on the existence and nature of the class of objects that are thought to underwrite logical necessity, such as abstract models. (2004, p. 81)

Shalkowski of course makes the additional point that this justification can be given using metaphysical considerations. We can frame the appropriate constraints in terms of the metaphysical necessities and possibilities for, arising from the essence of, logical objects. We can ensure that the models or the truth-tables of logic are relevant for necessity and possibility by taking them to encode essential truths about logical objects, such as propositions, or logical constants, and so on.

What the anti-essentialist takes to be modally innocent semantic facts involving models, the essentialist sees to be closet essentialism about peculiar sorts of entities. ... If the truths of logic as specified by truth tables are to be useable in our reasoning about contrafactual situations, then the semantic information contained in truth tables must represent not just the actual facts about propositions but also modal information about

propositions (or some other favoured truth bearers). This modal information, if it is to be useful in reasoning across the full range of the possibilities, must be information about the essence of propositions. Implicit in truth tables, then, is the thesis that what the tables represent are all and only the relevant possibilities for propositions. Conditions (i) and (ii) resurface as hidden assumptions in all elementary logical semantics. (2004, p. 78)

Logical modality is a matter of the essences of a certain class of logical objects, and associated metaphysical necessities and possibilities for those objects. In order to fix on an account of logical modality, one must address certain metaphysical issues concerning the natures of certain objects. Therefore, one cannot give an account of metaphysical modality in terms of logical modality, as this will lead to circularity; any successful account of logical modality will have made prior recourse to metaphysical necessities and possibilities for logical objects.

In response, one might ask why truth tables contain only *some* information about the essence of propositions, and how the line is drawn between information which is and is not included. E.g., one might think that propositions are essentially *abstract* entities, or essentially *intentional* (about things), or essentially such that they can be the objects of certain attitudes such as belief, or perhaps even essentially logical entities. But none of this appears to be encoded in the truth tables of propositional logic. The same point applies if one abandons the idea that these encode the essence of *propositions*, in favour of taking them to encode the essence of the *logical constants*, such as conjunction and negation. These will still arguably have essential properties which fail to be encoded, such as being essentially abstract. This is an instance of a general problem: the essentialist needs to distinguish between what is true in virtue of the nature of logical entities, and a proper sub-class which covers our standard notion of logical necessity.<sup>3</sup> Shalkowski owes us an explanation of why only some essential truths about logical entities are relevant for what models there are.

One might also accuse Shalkowski of assuming an essentialist account of modality in his argument. He moves immediately from the thought that models must represent ‘modal information about propositions’, to the claim that this modal information ‘if it is to be useful in reasoning across the full range of the possibilities, must be information about the essence of propositions’ (2004, p. 78). But this only follows given an antecedent commitment to an essentialist account of this modal information. An alternative move could take the modal information to arise from the limits of how we think about propositions, or even from the behaviour of counterpart propositions in other possible worlds.<sup>4</sup> Note also, even if we need information about

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<sup>3</sup>See e.g. Correia (forthcoming, §5).

<sup>4</sup>Unless you think propositions are sets of worlds.

‘the full range of the possibilities’ it is not clear that information about the *essence* of propositions will do that. Suppose you take essence to provide the source of metaphysical possibility, but that you nevertheless take mere logical possibility to be a genuine kind of possibility. The essence of propositions is only going to tell you what is metaphysically possible for propositions, but surely, for the purposes of logic, we want to count what is logically possible as well?

Two variants of this argument are presented by Vaidya (2006). He starts with the fact that there are many different formalizations of logic to choose from when giving an account of logical modality.

1.  $P$  is logically necessary only if  $P$  is either an axiom or deductive consequence of the axioms of the correct logical system.
2. There are multiple formalizations of logic that are plausible. ...
3. There are three plausible domains one can appeal to in order to determine which formal system correctly captures logic: logic, metaphysics, or physical theory.
4. Appealing to different formalizations of logic to determine which formal system is correct is circular. Moreover, one cannot appeal to facts about a first-order classical system to argue that a paraconsistent system is not adequate. The facts appealed to must be external to the formalization.
5. Appealing to physical theory to determine which formal system is correct would commit the naturalistic fallacy.
6. Consequently, the domain one must appeal to in determining which formalization of logic is correct is metaphysics.
7. Therefore, some metaphysical truths about the scope and nature of logic determine whether  $P$  is logically necessary. (2006, pp. 179–180)

In short, in order to fix on a unique account of logical necessity, we need to fix on a unique underlying logical system. The only way to settle on the correct logic for logical necessity is to appeal to metaphysical considerations. Therefore, metaphysical considerations in part determine whether a given proposition is logically necessary.

This argument suffers from a circularity problem. Regardless of the conclusion, one is using logical reasoning to come to the conclusion that such-and-such is the correct logic.<sup>5</sup> Even if we don’t endorse this particular argument, it seems likely that in arguing that one logic is correct, we will engage in logical reasoning, and thus presuppose some underlying logical

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<sup>5</sup>This was pointed out by Bob Hale.



principles. It looks like one will have to appeal to *something* non-logical to get off the ground justifying one logic over another. But it also looks like logic is always going to appear in the picture somewhere.

Vaidya's second argument is more specific about what metaphysical considerations he takes to be relevant to logical necessity, namely, the nature or essence of logical constants. What propositions are logically true depends upon which propositions are true under substitution of their non-logical constituents. This, in turn, depends upon what the logical constituents are, i.e. what the logical constants are. We need to be right about the distribution of the fundamental kind property of being a logical constant in the world in order to be right about the logical truths and logical necessity.

[L]ogical necessity is metaphysically determined by the logical constants. ... A proposition  $P$  is a logical truth just in case  $P$  is true under every replacement of constituents of  $P$  that are not logical constants. Consequently, the logical truths are determined by what the logical constants are. ...

One distinctively metaphysical principle is the essentiality of fundamental kind. In general, the fundamental kind of thing  $x$  is, is a property  $x$  cannot fail to have. The properties that individuate an entity at its most fundamental level are essential to that entity. These properties speak to the issue of *what kind* of thing  $x$  is. The suggestion here is that *being a logical constant* is a fundamental kind property. ... What things are taken to be logical constants can vary across various formalizations of logic. However, for a system  $L$  to be the correct logical system is for it to capture the essential nature of the logical constants. Consequently, there is a metaphysical foundation to logic. (2006, pp. 180–181)

This argument rests upon the principle of the essentiality of fundamental kind. So one can only accept Vaidya's conclusion if one is also prepared to accept the truth of this principle, and that it applies to entities such as logical constants. The argument also leaves open some important details of how this principle is to be used. Vaidya appeals to the idea that *being a logical constant* is an essential property, such that logical necessity stems from a fixed class of logical constants. However, it also seems natural to expect that, on this view, *the nature of each logical constant* would be relevant. E.g., one might take one difference between Classical and Intuitionistic logic to be that they attribute different properties to *negation*. One way to decide between the logics might be to inquire into the nature of *negation*, e.g. if an essential property of *negation* is that, for all  $p$ ,  $\neg\neg p$  iff  $p$ , then Intuitionistic logic is wrong because it gets the properties of *negation* wrong. Vaidya might reply that *intuitionistic negation* and *classical negation* are different entities, one of which, say, is essentially of the kind *logical constant*, one of which is not.

Suppose the logical constant is *classical negation*. What kind of thing is *intuitionistic negation* then, if not a logical constant? Perhaps, then, *classical negation* and *intuitionistic negation* are both logical constants, but different *kinds* of logical constant. However, this would undermine Vaidya’s point. He suggests that for a logical system to be “*the correct logical system* is for it to capture *the essential nature of the logical constants*” (my emphasis). But if both kinds of negation are logical constants, albeit different kinds of logical constant, then a logical system must include both kinds. But it can’t be that both  $\forall p(p \Leftrightarrow \neg\neg p)$  and  $\neg\forall p(p \Leftrightarrow \neg\neg p)$ . One could reply that *the correct logical system* has to capture the essential nature of logical constants *of a particular kind*. But then one will need to argue why one kind, e.g. the classical constants, should be favoured over another, e.g. the intuitionistic constants. But this returns us back to the debate over what is the correct logical system—essentialist considerations have not helped us. Alternatively, one could claim that *a correct logical system* has to capture the essential nature of logical constants of *a kind*, but that there can be many such correct systems. But this would be (a) to reject the assumption behind Vaidya’s first premise, that there is such a thing as *the correct logical system*, and (b) to engage again in debates concerning logical pluralism vs. logical monism. Again, essentialism has not helped us avoid these debates. The advantage of talking in terms of “capturing the essential nature of the logical constants” has been lost. We are left with the same, familiar debates.

An additional matter concerns how we are supposed to discover what the right logic is. It may be well and good to claim that logical necessity is determined by metaphysical necessities stemming from the essence of the logical constants (or from the essentiality of *being a logical constant*), however, it remains unclear how we may be able to discover these essences.

The final point of Shalkowski’s that I wish to highlight suggests where the problematic metaphysical commitments of the anti-essentialist may lie. The argument is, roughly, that logical modality, in allowing all and any combinations of properties, and in claiming to be metaphysically significant, is committed to the Humean metaphysical position that there are no necessary connections between distinct existences, i.e. no combinations of primitive properties are ruled out by the relations between them.

If logical necessity is supposed to be a metaphysically significant necessity in the sense explained, that is, that the T-axiom holds for logical necessity, then one adopting classical logic as encompassing all and only the fundamental necessary truths must face the fact that defending this commitment requires defending a substantial Humean metaphysical view. If the only necessities are austere logical truths expressed in primitive predicate notation, then whatever is not ruled out by those truths is possible; whatever is not contradictory is possibly true. This is simply

a way of expressing in terms of grammatical form the metaphysical thesis that all logically possible combinations of basic properties are genuinely possible; there are no necessary connections between primitive properties. The problem here is not that the anti-essentialist will find this Humean metaphysics unattractive, but rather that the modal doctrine, the anti-essentialism, is hostage to a particular metaphysical program. This conflicts with the common perception that logic and its correlated modality are free of metaphysical commitment in a way that essentialism is not. (Shalkowski, 2004, pp. 73–4)

Note that the passage ends with a point about the dialectic between essentialists and anti-essentialists. Both bear significant metaphysical commitments. The problem for anti-essentialists, however, is that it seems that their account of modality requires that there be no such metaphysical commitments. Essentialists have no such constraint, and thus gain the advantage here.

This argument rests on the idea that the anti-essentialist takes logical modality to be *genuine*, and thereby takes it to be *metaphysically significant*. But this just seems wrong. The point of having a notion of logical possibility wider than metaphysical possibility is clearly completely undermined if one also claims that all logical possibilities are “metaphysically significant”, where “metaphysically significant” would appear to mean “metaphysically possible”. In taking a certain stance on what it takes for a possibility to be genuine or real, and dismissing all weaker kinds of possibility as no good, Shalkowski is clearly favouring his essentialist view. Of course mere logical possibilities are not metaphysically possible, but the relative modality theorist does not want to claim that they are. They want to be able to say *both* that some logical possibilities are not metaphysical possibilities and that mere logical possibility is still genuine possibility. Shalkowski’s argument that taking logical modality to be “genuine” commits one to Humean metaphysics, depends crucially on understanding “genuine” to mean something like “metaphysically significant”. But someone who takes the realm of logical possibility to be wider than the realm of metaphysical possibility would precisely not take logical possibility to be *metaphysically significant*, although they may have another way to cash out the idea that logical possibilities are not mere possibilities “in name only”.

### 2.3 A Problem for Logical Necessity

There is a general point to take from these arguments, which poses a challenge for RM, concerning the consequences of taking a certain view of logical necessity as based on the behaviour of some logical entities. Some philosophers take it to be pretty straightforward to take talk about models, propo-

sitions, logical constants and so on to usher in some things which really exist, such as models, propositions, and logical constants. So, e.g., a truth about propositions such as “Not every proposition is true”, will depend for its truth upon the behaviour of some abstract objects, propositions. And in saying, “My favourite truth-function is conjunction,” I say something true if, of all the abstract objects which are truth-functions, *conjunction* is the one I like best. Defining logical truth in terms of such entities looks to have worrying consequences for the current project. E.g., if you think that logical truth is truth in all models, then to be assured that the models capture all and only the possibilities, one will need to say something about the nature and existence of models (understood as abstract objects). Or, if models are supposed to correctly represent the behaviour of truth-bearers, then one will need to say something about the essential nature of truth-bearers (typically, propositions).

Likewise, if you think that logical truth is a matter of truth under substitution of non-logical constituents, then one will need to say something about the nature and existence of the logical constituents, i.e. the logical constants. One will need to be assured of what the logical constants *are*, and that they *couldn't have been otherwise* in some important respects. E.g., if *conjunction* could have failed to be a logical constant, then something of the form “*If A and B is true, then B is true*” could perhaps have failed to be a logical truth. So one might want to endorse an essentiality of kind thesis for the kind *logical constant* to avoid this possibility. Or, alternatively, suppose *conjunction* is an abstract object which is essentially a logical constant, but such that it could have behaved truth-functionally differently, e.g. *conjunction* could have been such that it took two false propositions and mapped them to the true. If *conjunction* could have been this way, then “*If A is false and B is false, then A and B is true*” could have been a logical truth. So one might want to endorse an essentialist thesis about the features that make a logical constant what it is.<sup>6</sup> It's no use giving an account of logical necessity in terms of logical truth thus characterized, if a certain logical constant could have failed to be a logical constant, or if a logical constant could have behaved importantly differently. As the problem is framed in terms of (logical) objects, the essentialist makes a natural move to provide a solution in terms of essences of those objects.

It seems to me that this presents a genuine challenge to RM. If claims about logical truth really are to be understood as claims about certain logical entities, then the crucial properties of those entities had better not be accidental, otherwise logical necessities and possibilities will not even match

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<sup>6</sup>Many will argue that there is nothing more to *conjunction* than its truth-functional character, or its introduction and elimination rules, and hence that this example is impossible, or perhaps even incoherent. I am not trying to argue that *conjunction* really could have behaved differently in this way. The point is simply to highlight the underlying assumption that it *couldn't*, because of its essential nature.

the metaphysical necessities and possibilities. If logical truth concerns the properties of entities such as the logical constant *conjunction*, then properties of *conjunction* such as *the property of being someone's favourite logical constant*, which *conjunction* could easily have failed to have, will clearly be irrelevant. By contrast, some properties of *conjunction* seem crucial, such as its introduction and elimination rules, or its being a logical constant. It looks like *conjunction* couldn't fail to have these properties and continue to be what it is. But if that is what is driving the account of logical truth and logical necessity, then one will need to explain *why* the entity could not fail to have those properties. Hence the essentialist gives an explanation in terms of the essences of things. The essentialist takes the essences of things to provide the source of metaphysical necessity, so at the heart of their account of logical truth will be metaphysical necessities and possibilities for logical entities. So we end up with an account of logical necessity in terms of what is *metaphysically* necessary and possible for certain entities. How, then, can RM maintain that metaphysical modality is mere relative logical modality?

One strategy that RM can employ is to avoid accounts of logical necessity that are obviously premised on the nature of particular entities, such as models, propositions or logical constants. In the next chapter I will present an account of logical necessity based on a notion of logical laws as constitutive norms of thought. This view does not rely upon the nature of an entity, but it does arguably depend upon the nature of *thought*. I will discuss whether this is a serious problem in section 3.5.6. As I said before, one may also reject the essentialist link between essence and metaphysical necessity, such that having the essence of some thing at the base of RM does not lead to any problematic circularity.

## Chapter 3

# A Logical Basis for Relative Modality

### 3.1 The Search for Fundamental Modality

The relative modality view (RM) claims that at least the non-logical alethic modalities are mere relative forms of logical modality, i.e.

$$\begin{aligned} \text{It is } R\text{-necessary that } p: & \quad \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \\ \text{It is } R\text{-possible that } p: & \quad \neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p)) \end{aligned}$$

where “ $\Box$ ” expresses logical necessity.

One requirement of this view is that there be at least one kind of *non*-relative necessity, a fundamental necessity of which relative modalities are mere relative forms. As a view in metaphysics, RM has it that relative modalities are *mere relative forms* of some other kind of modality. To claim that *all* kinds of modality are relative, would therefore end in a circle or a regress: if *A*-necessity is a mere relative form of *B*-necessity, and *B*-necessity is a mere relative form of *C*-necessity, and *C*-necessity is a mere relative form of *D*-necessity, . . . , then this will either result in a regress which never bottoms-out in a definitive kind of modality of which other modalities are mere relative forms, or a circle, where the regress turns back to an earlier necessity, e.g. where *Z*-necessity is a mere relative form of *A*-necessity. Such a regress or circle would be vicious: if a relative necessity *just is* a mere relative form of something else, then with no non-relative necessity in the chain or loop, there will be nothing at bottom for these necessities to *be*. I have restricted my interest, from the claim that *all* non-logical modality is relative, to the more modest claim that at least the non-logical alethic modalities are relative. Within this domain the same point applies. In giving an account of the non-logical alethic modalities as being (mere relative) forms of logical modality, it is not open to me to give an account of logical modality as a relative form of an alethic modality.

Note: this more modest claim does allow that logical modality might be given a relative treatment in terms of some non-alethic modality. However, to take that route from the outset would immediately rule out any hope of RM extending to cover all non-logical modality (see section 1.2). That said, one might argue that the view which I will ultimately develop in this chapter treats logical necessity in terms of normative necessity, in characterizing the most basic laws of logic as being constitutive norms for thought. A further question would then arise regarding the nature and source of normative necessity. One might be attracted to a view which treats alethic modalities as relative forms of logical necessity, where logical necessity finds its source in laws of thought, because one finds the idea that there is bare, mind-independent possibility and necessity in the world intuitively implausible. It seems to me that *normative* necessity is far more amenable to receiving a mind-dependent or anthropocentric account, explaining norms in terms of human interests and practices, than alethic necessity. So, if it is after all correct to deem my account as treating all non-logical alethic modalities as relative logical modalities, and logical modalities as some kind of normative modality, then perhaps that is not such a bad outcome.

So far it has been assumed that this fundamental (non-derivative) necessity underlying relative modality is logical necessity. Note that it will be good news for RM if there is *any* such fundamental necessity out there which is suitable to underwrite the relevant relative modalities. In particular, one aim of the current project is to give an informative account of what it is to be metaphysically necessary and possible. So the fundamental necessity had better be able to underwrite an account of metaphysical necessity as relative. This immediately rules out taking metaphysical necessity to play the role of fundamental necessity. In addition, further positive reasons for not taking metaphysical necessity to be the fundamental necessity will emerge below (see section 3.5). That said, I will claim that the fundamental necessity is logical after all.

Earlier (section 2.1) I discussed Hale's version of McFetridge's argument for the absoluteness of logical necessity. McFetridge claimed that the argument could show that logical necessity is strictly stronger than any other kind of (non-epistemic) necessity. Hale (1999) has shown that the argument can only yield the conclusion that logical necessity is *at least as strong as* any other kind. This conclusion at least frames logical necessity as a candidate for the fundamental necessity, to which the others are relative. Hale's conclusion allows that there might be other absolute necessities. However, the other candidate is understood to be *metaphysical* necessity. As I have just mentioned, taking metaphysical necessity as fundamental is not open to me. So, logical necessity it is!

It is important to distinguish between two different questions:

1. What is logical necessity?

## 2. What is the basis or source of logical necessity?

In response to the first question, I will argue that logical necessity is intimately related to the relation between premises and conclusion in a deductively valid argument. The second question requires us to say something deeper about where such a status might arise from. What is the most fundamental explanation we can offer for something's being logically necessary, the "nuts and bolts" of the matter? An answer to the first question need not determine any particular answer to the second. RM needs to answer both questions. In particular, in order to ensure that RM is able to yield an account of metaphysical modality as relative, an account of the basis or source of logical necessity as fundamental must avoid recourse to metaphysical necessities and possibilities.

The plan is therefore as follows: In section 3.2 I address question (1) by looking at some thoughts on the matter put forward by Ian McFetridge. Logical necessity turns out to be intimately connected with logic, deductive validity and logical consequence. Hence, in looking for an account for the source of logical necessity, I will be charged with the task of looking at the sources of such logical notions. In section 3.3 I introduce the view that the laws of logic are laws of thought, as a candidate account of the source of logical necessity. I go on to develop and motivate a constitutive-normative account of laws of logic as unconditionally binding our thought, and as underlying a notion of logical necessity. Section 3.4 will introduce and provide evidence for a phenomenon I call a "logocentric predicament". In section 3.5 I argue that the best explanation of this phenomenon is that the laws of logic are constitutive-normative laws of thought, and consider some challenges for the resulting view.

## 3.2 What is Logical Necessity?

### 3.2.1 Logical Necessity and Deductive Validity

One of the most helpful and rich discussions of logical necessity in the literature is McFetridge's "Logical Necessity: Some Issues". I take McFetridge to have been grappling with two main issues in this paper: (1) If there is such a thing as logical necessity, what is it?; and (2) What is the purpose of beliefs about logical necessity? Much of his discussion focuses on what it takes for someone to count as committed to logical necessity, or what it takes for someone to have a belief in logical necessity. But much of the material is still helpful when it comes to the nature of logical necessity.

The first key point highlighted by McFetridge is a connection between deductive validity in an argument and logical necessity. Deductive validity is a, perhaps *the*, central notion in logic. We often take the validity of an argument to be a modal matter: we say that in a valid deduction the conclusion



follows *of necessity* from the premises, or that an argument is valid if it is *impossible* for the premises to be true and the conclusion false. McFetridge's point is then that, if any notion of necessity deserves to be called *logical* necessity, it should be the kind of necessity attaching to deductive validity, if indeed there is any necessity there.

Deductive validity is the central topic of logic. So if, as Aristotle and others have thought, to think of an argument as deductively valid requires us to deploy a notion of necessity, then that notion, if any, will deserve the label 'logical' necessity. There will be a legitimate notion of 'logical' necessity only if there is a notion of necessity which attaches to the claim, concerning a deductively valid argument, that if the premises are true then so is the conclusion. (McFetridge, 1990, p. 136)

I agree with McFetridge. Indeed, I find it hard to imagine how anyone could argue that, if there is some kind of necessity involved in deductive validity, then this should not be called logical necessity, in favour of giving the title to something else. What could count as more logical than the notion of a deductively valid argument? This is amongst the least controversial of the claims I will be discussing, so I will take this starting point for granted.

Rumfitt (2010) also endorses a connection between *logical necessity* and *logical consequence* (the latter being a close relative of *deductive validity*)<sup>1</sup> although not directly. He favours an understanding of logical necessity in terms of logical contradiction—it is logically necessary that  $p$  just when it is logically contradictory that  $\neg p$ —and demonstrates a connection to logical consequence as a meta-theorem, using classical logic.

What does it mean to say that there is a notion of logical necessity? I mean this: there is a sense of 'necessary' for which  $\lceil$ It is necessary that  $A$  $\rceil$  implies and is implied by  $\lceil$ It is logically contradictory that not  $A$  $\rceil$ . If we assume a classical logic ... we immediately have the following meta-theorem: whenever  $B$  follows logically from  $A_1, \dots, A_n$ , the statement  $\lceil$ It is logically necessary that if  $A_1$  and ... and  $A_n$  then  $B$  $\rceil$  is true (where the conditional is understood to be material). So logical necessity is

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<sup>1</sup>Deductive validity is a property of an argument. What is an argument? 'An *argument*, in the sense that concerns us here, is what a person produces where he or she makes a statement and gives reasons for believing the statement. The statement itself is called the *conclusion* of the argument...; the stated reasons for believing the conclusion are called the *premises*' (Hodges, 1977, p. 36). An argument is deductively valid just when it is impossible for the premises to be true and the conclusion false. Logical consequence is a relation holding between the premises and conclusion of an argument: a conclusion  $C$  will be a logical consequence of some premises  $A_1, \dots, A_n$  if and only if there is a deductively valid argument from  $A_1, \dots, A_n$  to  $C$ .

implicated in logical consequence. (Rumfitt, 2010, p. 35)<sup>2</sup>

Rumfitt is perhaps more precise than McFetridge, but I will use McFetridge's characterization as the notion of necessity attaching to deductive validity, if any, as my working notion of logical necessity. In invoking logical contradiction to characterize logical necessity, and in assuming classical logic, Rumfitt prejudices some important issues. E.g., if logical necessity is intimately connected with logical consequence and validity, and the source of logical necessity is thereby to be discovered by considering the nature of logic, of which consequence and validity are central notions, then at that level of inquiry it will not be appropriate to have certain prior commitments, either in favour of classical logical systems, or against certain non-classical logics, e.g. paraconsistent and dialethic logics.

An immediate question arises from McFetridge's careful way of putting things: how can one be assured that there is indeed any necessity attaching to deductive validity? I will therefore consider two arguments which promise to provide some assurance. First, an argument from McFetridge for the conclusion that we are constrained to believe in logical necessity (more exactly, logically necessarily truth-preserving rules of inference). Second, an argument from Rumfitt against what he calls Russell's Logical Philonianism, a view which explicitly rejects any modal aspect as belonging to deductive validity.

### 3.2.2 McFetridge on Belief in Logical Necessity

At the relevant point in the paper, McFetridge takes himself to have already established that logical necessity, if there is such a thing, is the *strongest* kind of necessity, i.e. if it is logically necessary that  $p$ , then (a) there is no (non-epistemic) sense of possibility for which it is possible that  $\neg p$ , and (b) for every (non-epistemic) sense of necessity, it is also necessary that  $p$  in that sense. Earlier I discussed a closely-related argument from Hale (1996). Hale observes that his and McFetridge's arguments may be successful in establishing that logical necessity is *absolute*, in the sense that logical necessity is *at least as strong as* every other (non-epistemic) kind of necessity, but that neither argument establishes that logical necessity is *stronger* than every other kind. It is left open that some other kind of necessity may *also* be absolute.<sup>3</sup>

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<sup>2</sup>For suppose  $B$  follows logically from  $A_1, \dots, A_n$ . Then the statement 'It is logically contradictory that  $A_1$  and  $\dots$  and  $A_n$  and not  $B$ ' is true. So if 'if...then' is read as a material conditional, the statement 'It is logically contradictory that not (if  $A_1$  and  $\dots$  and  $A_n$  then  $B$ )' is true. So, on the recommended conception of logical necessity, the statement 'It is logically necessary that if  $A_1$  and  $\dots$  and  $A_n$  then  $B$ ' is true.' (Rumfitt, 2010, p.34, fn.1)

<sup>3</sup>Such as metaphysical necessity. See Hale (1996) and section 2.1.

McFetridge connects this idea about logical necessity and absoluteness to another concerning reasoning from suppositions. Two steps take us from deductive validity to suppositions. First, McFetridge emphasises the fact that the *validity* of an argument from some premises to a conclusion is independent of the *truth* of those premises and conclusion. When we use logical reasoning with a view to producing a valid argument, we can reason just as well from *mere suppositions* as we can from premises that are believed or known to be true.

Deductive inferences, then, are supposed to remain valid when they are applied to mere suppositions, and indeed regardless of what suppositions they are applied to, or are made in the course of the argument. (1990, p. 151)

Second, McFetridge connects an inquiry into reasoning from suppositions with the theory of subjunctive or counterfactual conditionals.

I suggest then that we might illuminate some aspects of the role of deductive principles, and more generally logically necessary truths, in reasoning from suppositions by drawing on the theory of conditionals, in particular the theory of subjunctive conditionals. (1990, p. 151)

A close relationship between reasoning from suppositions and counterfactual conditionals seems to be *prima facie* plausible. After all, what might run through one's mind in reasoning from a supposition? Something like: if it were the case that *p* (let us suppose so), what would also have to be the case?

Finally, McFetridge introduces the notion of the *co-tenability range* of a mode of inference. Hale summarizes nicely:

[C]all the range of suppositions under which the use of a mode of inference *M* is not questionable for the sorts of reason touched upon its co-tenability range. (Hale, 1999, p. 29)

In certain cases of reasoning from a supposition, certain laws will come into play, e.g., the laws of nature. If I reason from the supposition that I strike a dry match in the presence of oxygen, to the conclusion that it lights, I am most likely bringing to bear the laws of nature as auxiliary premises or rules of inference. This doesn't follow logically, but it looks like a good argument on these other terms. But there are circumstances in which it would not be appropriate to bring to bear laws of nature, e.g., when I reason from the supposition that some laws of nature are false. In this case, McFetridge would say that the supposition is not *co-tenable* with modes of inference derived from the laws of nature, and hence that the supposition falls outside of the co-tenability range of the laws of nature.

Now consider: are there any modes of inference which can be deployed in reasoning from any supposition whatsoever, with no limit to their cotenability range? McFetridge's suggestion is that *belief that a mode of inference is logically necessarily truth-preserving* is to be equated with *preparedness to employ that mode of inference in reasoning from any supposition whatsoever*. If we can show that there are indeed some modes of inference which we are prepared to employ in reasoning from any supposition whatsoever (with an unlimited cotenability range), then we will thereby show that we are committed to the belief that there are some modes of inference that will preserve truth *no matter what else may be the case*, which will in turn amount to showing that we are committed to the existence of some logically necessarily truth-preserving modes of inference, and hence that we are committed to logical necessity.

I therefore wish to suggest that we treat as the manifestation of the belief that a mode of inference is logically necessarily truth-preserving, the preparedness to employ that mode of inference in reasoning from any set of suppositions whatsoever. Such a preparedness evinces the belief that, no matter what else was the case, the inferences would preserve truth. And the suggestion is that it is just this preparedness which is built into the idea that the validity of an argument is quite independent of questions about the truth of its premisses. A central point of interest in having such beliefs about logical necessity is to allow us to deploy principles of inference across the whole range of suppositions we might make. (McFetridge, 1990, p. 153)

McFetridge makes the additional point that we can understand why belief in logical necessity is important to us in terms of the utility of having principles of inference that we can deploy no matter what, regardless of other suppositions we might make.

And so to the argument. McFetridge characterizes abandoning a belief in logical necessity as follows:

To abandon the belief in logical necessity would be to believe that for every acceptable mode of inference  $M$  there is at least one proposition  $r$  (it might be a very long disjunction) such that it is illegitimate to employ  $M$  in an argument which makes the supposition that  $r$ . (McFetridge, 1990, p. 153)

Thus, I will take McFetridge's account of the content of a belief in logical necessity to be LN:

- (LN) There is some rule of inference  $M$  such that there is no supposition  $r$  such that, if it were the case that  $r$ ,  $M$  would not preserve truth.

And his account of abandoning the belief in logical necessity as a belief in the negation of LN, i.e.

- ( $\neg$ LN) For every rule of inference  $M$  there is some supposition  $r$  such that, if it were the case that  $r$ ,  $M$  would not preserve truth.

There are then two cases subsumed under a belief in  $\neg$ LN. First, where it is known, for a rule of inference  $M$ , which supposition or suppositions  $r$  would prevent  $M$  from preserving truth. On this case, the rejection of logical necessity is self-refuting: one can simply amend the rule to specify that it applies under not- $r$  conditions. Second, where it is not known which suppositions will prevent a rule  $M$  from preserving truth. But then this would cause irrevocable damage to our practices of reasoning from suppositions at all, because we could never know, when reasoning from any supposition  $r$ , via rule  $M$ , whether  $r$  was the supposition under which reasoning in accordance with  $M$  fails to be truth-preserving. Hence we should reject  $\neg$ LN and retain a belief in LN.

I conclude then, that on the present view of what it is to regard a rule of inference as logically necessarily truth-preserving, we are constrained to believe that there are such rules. For if we abandoned that belief, we would be unable to reason from suppositions at all. (McFetridge, 1990, p. 154)

If McFetridge's argument is successful, it will go some way towards providing assurance that there is such a thing as logical necessity. If our practices of reasoning from suppositions require that we believe that some modes of inferences are truth-preserving no matter what the supposition, true or false, *come what may*, then it looks like our practices of reasoning from suppositions commit us to a belief in logical necessity.<sup>4</sup>

Is the argument successful? Hale (1999) discusses this argument in detail, and raises several challenges. In particular, he notes that McFetridge has assumed that, if one believes  $\neg$ LN, one must be assured in any case of reasoning that a candidate rule to be used is co-tenable with the suppositions in play. However, why should this be so? Hale's skeptic retorts:

Why do you assume that if I am to use a rule  $R$  in reasoning under the supposition that  $p$ , I must first be able to ascertain

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<sup>4</sup>A simple "proof" of  $\neg$ LN goes as follows: Let  $M$  be an arbitrary rule of inference. Let  $r$  be the supposition that  $M$  does not preserve truth. Trivially, if  $r$  were the case, then  $r$  would be the case. Therefore, there is a supposition such that if it were the case, then  $M$  would not preserve truth. *QED*. However, this argument begs the question. ' $r$ ' is supposed to be a specification of circumstances under which  $M$  fails to preserve truth. The suggested case where  $r$  is " $M$  does not preserve truth" only supposes that there is such a circumstance without specifying which circumstance that is.

whether  $R$  is, under that supposition, reliable? I don't have to do that. It is enough that I have no positive reason to doubt that  $R$  will fail under the supposition that  $p$ . (1999, p. 32)

The skeptic adheres to the slogan “a rule is innocent until proven guilty”, and feels justified in using a rule until such time as it may be falsified by a particular case of reasoning under a supposition. It isn't necessary to determine whether or not the rule is truth-preserving in all cases before one gets going. Hale accordingly mounts an attack on this “falsificationist methodology”, in order to show that this kind of skepticism is not an option, leaving McFetridge's argument intact.

To go through all of Hale's arguments pertaining to this matter would be too great a task for present purposes, so I will only briefly summarize. Hale's reasoning goes something like this. Where one believes  $\neg$ LN, this means that for any rule, say rule  $M$ , we have to be able to recognise that circumstances might arise in which  $M$  would fail (even if we do not know the exact circumstances). In order to do so, some reasoning will be involved. Such reasoning would have to involve rules other than  $M$ , call one such rule  $R$ . But once both rules  $M$  and  $R$  are in play, who is to say that it is rule  $M$  rather than rule  $R$  which is the culprit? In coming to recognise that  $M$  might fail to be truth-preserving in some circumstances, it might be that rule  $R$  was defective, and lead us to an unfair opinion about  $M$ . At this point, pragmatic considerations will be brought into play to choose between the rules, including which rule is more or less recalcitrant in the light of experience. But in order to calculate these degrees of recalcitrance, one will need to do some reasoning, which will involve the use of some further rules, but then, it is again open to lay the blame at the door of the new rule, rather than the old. And so on and so forth. (See Hale (1999).) This falsificationist methodology collapses into regress.

In summary, McFetridge's argument shows that our practices of reasoning from suppositions, which we are not likely to give up, commit us to a belief in logical necessity, i.e. a belief that some rules of inference are truth-preserving when reasoning under any supposition whatsoever, whatever may be the case.

### 3.2.3 Rumfitt on Logical Philonianism

A different challenge to the connection between deductive validity and logical necessity is considered and rebuffed by Rumfitt (2010). The challenge comes from Russell's characterization of validity, which demands that for an argument from  $\langle p \rangle$  to  $\langle q \rangle$  to be valid,  $\langle p \rangle$  and  $\langle \neg p \vee q \rangle$  need only be true, i.e. not *necessarily* true. For inference to take place (for it to be worthwhile)  $\langle \neg p \vee q \rangle$  must also be known, but not in virtue of knowing that  $\neg p$  or knowing that  $q$ .

Whenever  $p$  is false, ‘not- $p$  or  $q$ ’ is true, but is useless for inference, which requires that  $p$  should be true. Whenever  $q$  is already known to be true, ‘not- $p$  or  $q$ ’ is of course also known to be true, but is again useless for inference, since  $q$  is already known, and therefore does not need to be inferred. In fact, inference only arises when ‘not- $p$  or  $q$ ’ can be known without our knowing already which of the two alternatives it is that makes the disjunction true. Now, the circumstances under which this occurs are those in which certain relations of form exist between  $p$  and  $q$ . . . But this formal relation is only required in order that we may be able to know that either the premiss is false or the conclusion is true. It is the truth of ‘not- $p$  or  $q$ ’ that is required for the validity of the inference; what is required further is only required for the practical feasibility of the inference. [Russell 1919, p. 153, cited Rumfitt (2010, p. 38)]

In thus characterizing deductive validity, Russell threatens to debunk the antecedent of McFetridge’s conditional claim: *if there is any notion of necessity attaching to deductive validity*, then it deserves the title of logical necessity.

To defend logical necessity against Russell’s “Logical Philonianism”, we must once again turn to suppositions. The main question to raise in response to Russell’s view is: How can one know that not- $p$  or  $q$  without knowing that not- $p$  or knowing that  $q$ ? This is the condition under which, according to Russell, any actual inferring will take place. Rumfitt argues that this is something we cannot explain without recourse to our ability to reason from suppositions.

In general, the answer must be: because the thinker is able to deduce  $Q$  from the supposition that  $P$  (where the deduction tracks the contextually relevant consequence relation). Only having made that deduction from a supposition or hypothesis can he infer, in Russell’s sense, from his knowledge that either not  $P$  or  $P$  to attain knowledge that either not  $P$  or  $Q$ . (Rumfitt, 2010, p. 40)

Another way of looking at the case is that, in order to ascertain that either  $\neg p$  or  $q$ , without ascertaining either disjunct first, one will need to work out if both can be false together. If not, at least one will have to be true. So how might one go about working this out? Consider the logical relations between  $\langle p \rangle$  and  $\langle q \rangle$ , such as whether  $\langle p \rangle$ ’s being true (i.e.  $\neg\neg p$ ) is consistent with  $\langle \neg q \rangle$ ’s being true. Given that we don’t know whether  $p$  or whether  $q$  (in order for this to be a candidate case of inference for Russell), such considerations could only get started with suppositions or hypotheses regarding  $\langle p \rangle$  and  $\langle q \rangle$ .

So Logical Philonianism requires one to reason from suppositions in order to gain the requisite knowledge (that  $\neg p$  or  $q$ ) to engage in an inference from  $\langle p \rangle$  to  $\langle q \rangle$ . The fatal point is then that Logical Philonianism is unable to give an account of reasoning from suppositions, which looks like it should also be covered by a general account of valid inference.

Now there is nothing alien in the idea that we may exercise our deductive capacities in reasoning from suppositions just as much as in reasoning from what we know. . . . But reasoning from a supposition plainly demands a stronger condition for validity than Philonian consequence: the bare fact that either the conclusion is true or the premiss is untrue is insufficient to underwrite the soundness of arguments from suppositions, for what is supposed to be the case may fail to be true. (Rumfitt, 2010, pp. 40–41)

If we merely suppose that  $p$ , not requiring  $\langle p \rangle$  to be true, then the condition for validity can simply be fulfilled by the truth of the disjunction,  $\neg p$  or  $q$ , i.e. whenever  $\langle p \rangle$  is false or  $\langle q \rangle$  is true. So any inference from a false supposition (to whatever conclusion) will count as valid, as will any inference to a true conclusion (whatever the premisses). So the following inferences will count as valid, although they should not: “Dallas is in California, so violets are blue”; “Roses are red, so Dallas is in Texas”.

Note, there are two points. The weaker point is that, given that we do engage in reasoning from suppositions, a theory of valid inference should be able to account for this. We need to drop Russell’s idea that inference is based on known premisses, and once we do that, the account fails. The stronger point is that, even if we agreed that a theory of inference should be concerned only with reasoning from known premisses, the view still needs to account for our knowledge that  $\neg p$  or  $q$ , and this requires us make appeal to reasoning from suppositions. At which point a demand for an account of reasoning from suppositions reasserts itself. In short, a view such as Russell’s Logical Philonianism, which takes deductive validity to have no necessity attaching to it, presents a challenge against taking deductive validity as our guide to logical necessity. However, Russell’s theory is unable to adequately account for the notion of a valid inference from a mere supposition, whether we take the practice of reasoning from suppositions as given, or as implicated in the details of the view.

The main purpose of this section has been to introduce an intimate connection between logical necessity and deductive validity and logical consequence. Indeed, deductive validity and logical consequence allow us to pinpoint logical necessity: logical necessity is just that kind of necessity which attaches to a deductively valid argument (if the premisses are true, the conclusion *must* be true) or to the relation of logical consequence (a relation that holds between the premisses and conclusion in a valid argument). I have



presented some points in favour of thinking that there is indeed a notion of necessity in this vicinity, by looking at McFetridge's argument that we are required to believe in logical necessity, and by looking at Rumfitt's defence of this kind of necessity. The next task is to say something about the *source* or *basis* of logical necessity, which will amount to saying something about the source or basis of any necessity attaching to logical consequence and logical validity.

### 3.3 Laws of Thought

#### 3.3.1 The Strategy

In the previous chapter I discussed some challenges to RM posed by essentialism. One challenge concerned the consequences of taking a certain view of logical truth as based on the behaviour of some logical entities, such as propositions, truth functions or logical constants. In general, the challenge was that, if logical truth depends upon the features of these logical entities, then the crucial features had better not be merely accidental features of those entities. Hence, considerations of the metaphysics of logical objects was brought in. It was argued that the essences of those entities are what determine the logical truths. This kind of essentialist challenge needs to be kept in mind when formulating a suitable account for logical necessity to fit in with the current project. In general: in giving an account of logical necessity for RM, one had better not rely on an antecedent notion of some entity, such that the essential nature and thereby the metaphysical possibilities for that entity underwrite the account of logical necessity, otherwise this will rule out giving an account of metaphysical necessity as a mere relative form of logical necessity.

How should one proceed in light of the essentialist challenge? One option is to turn to developing and motivating an account of logical consequence and validity which is not immediately premised on the nature of logical entities. Rather than considering a class of entities as being distinctive of logic, it may be fruitful to consider an alternative basis for logic: our practices of reasoning and thinking in accordance with logical principles.

An approach to explaining the nature and source of logic (and thereby logical consequence and validity) with a rich historical tradition takes the laws of logic to be *laws of thought*. Such an approach can be found in Kant's work, particularly Kant's *Logic* and the *Critique of Pure Reason* (Kant, 1800, 1781, 1787), and in the work of Boole and Frege. In the case of Boole (1854), the clue is in the title of his book: *An Investigation of The Laws of Thought on Which are Founded the Mathematical Theories of Logic and Probabilities*. MacFarlane (2002) presents an interpretation of Frege's views on logical laws, whereby they are not straightforwardly laws of thought, but give rise to such laws. After presenting and motivating this

view, I will return to consider whether the essentialist challenge remains a legitimate threat (see section 3.5.6).

### 3.3.2 Introducing Laws of Thought

The view that the laws of logic are laws of thought is connected to the idea that logic is somehow *general*. Logical laws apply regardless of whatever the subject matter might be. Kant in particular is associated with this kind of view. He distinguished between two kinds of logic, *general logic* and *transcendental logic*. Transcendental logic comprises rules for the special employment of the understanding<sup>5</sup> to thought and judgment about objects of possible experience, i.e. objects that conform to the conditions under which the human mind is able to have objective representational thoughts and empirical experiences.<sup>6</sup> General logic, in contrast, is supposed to abstract from all content of judgment, and hence comprises rules for the employment of the understanding *tout court*, with no restriction as to subject matter.

Logic, again, can be treated in a twofold manner, either as logic of the general or as logic of the special employment of the understanding. The former contains the absolutely necessary rules of thought without which there can be no employment whatsoever of the understanding. (Kant, 1781, 1787, A52/B76)

The idea is that general logic (henceforth, logic) is about the rules or laws to which our employment of the understanding is subject in any circumstances. By “employment of the understanding”, I mean the use of concepts in propositional thought and judgment, and the drawing of logical relations between judgments. This includes both rules for using concepts and rules for relating different judgments.

Frege can also be read as being committed to some notion of laws of logic as laws of thought. Frege primarily takes the laws of logic to be the laws of *truth*. These are descriptive laws, general truths, where ‘general’ means that they apply to everything (rather than the Kantian notion of abstracting away from content).<sup>7</sup> However, he argues that, in addition to these descriptive general truths, arising out of the laws of truth are *prescriptive* laws of thought. Because the laws of truth are completely general, in the sense that they are about absolutely everything, they accordingly give rise to laws for

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<sup>5</sup>The understanding is our capacity for the employment of concepts and conceptual thought.

<sup>6</sup>E.g., Kant would deny that we can have full-blown objective thoughts (thoughts about something that can be true or false) or experiences of things such as genuine vacuums and uncaused objects, because the conditions of possible experience rule these things out, e.g. the principle that everything has a cause.

<sup>7</sup>For Kant, the generality of logical laws consists in their abstraction from the content of judgments, while for Frege, the generality of logical laws consists in their unrestricted quantification over all objects and all concepts.’ (MacFarlane, 2002, p. 32)

thinking about *anything*, about no particular subject matter, hence they are laws of thought *as such*.<sup>8</sup>

From the laws of truth there follow prescriptions about asserting, thinking, judging, inferring. [“Thoughts”, 1918, p. 58, cited in MacFarlane (2002, p. 36)]

The [laws of logic] have a special title to the name laws of thought only if we mean to assert that they are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all. [*Basic Laws*, 1893, xv, cited in MacFarlane (2002, p. 36)]

Again, the crucial idea is that laws of logic are, or provide, laws of thought in general, in any circumstances, regardless of particular subject matter.

Note that both Kant and Frege placed themselves in opposition to psychologistic logicians who took logic to be a matter of how we actually think. Many of us often make logical mistakes in everyday life. A psychologistic logician would take these into account in his data when trying to work out the laws of logic. Kant and Frege were interested, not in how we actually reason, but in how we *ought to* reason.

In logic we do not want to know how the understanding is and thinks, and how it hitherto has proceeded in thinking, but how it ought to proceed in thinking. (Kant, 1800, p. 16)

So the view is that the laws of logic are the laws of thought, where laws of thought are not drawn from regularities in actual everyday occurrences of thinking.

There are many different ways one might understand what a law is. My working notion of a law is something like a general truth or a general statement in a certain domain. E.g., a law of nature might be *the change in the internal energy of a system is equal to the amount of heat supplied to the system, minus the amount of work done by the system on its surroundings* ( $dU = \delta Q - \delta W$ ). It might turn out (indeed, I think it will) that this general truth about physical systems is a natural necessity, but being naturally necessary is not the distinctive feature that makes it a law. I discussed this notion of a law of nature very briefly when looking at Fine’s counterexamples to RM in section 1.3.5. To mount a comprehensive defence of this kind of understanding of a law of nature would go beyond the focus of the current project, but it must be noted that this is an underlying assumption. At least in the case of something like laws of nature, RM risks vicious circularity if

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<sup>8</sup>The sense in which Frege takes laws of logic to be about everything is explained in section 3.5.2. See also Textor (2010, Chapter 1) for more on Frege on arithmetic, logic and logical laws.

what it is to be a law of nature is to be naturally necessary, but what it is to be naturally necessary is to follow from the laws of nature. Laws of nature, then, can be said to be general truths about the natural world.<sup>9</sup> Laws of biology might be said to be general truths about biological entities and processes. Some laws do not require truth, e.g., a particular moral law may be comprised of general statements concerning behaviour that ought to be true, such as ‘no person kills another’, or ‘everyone is charitable’. Laws of logic, then, can be understood, at least initially, as general statements (or truths) with no restriction to a particular domain. Candidate examples might include ‘everything is self-identical’ or ‘nothing is true and false’.

There are three crucially different ways one might understand a candidate law: *constitutive*, *normative*, or *constitutive-normative*. A *constitutive law* tells us about the nature of a thing. Constitutive laws for *F*s function to separate the *F*s from the non-*F*s. These kinds of laws tell us what is and is not possible for *F*s. E.g., consider the view that rules of inference are constitutive laws in this sense. So the rule *modus ponens*<sup>10</sup> will tell us something about the nature of inference (or implication). Furthermore, if someone reasons incorrectly, and does not conform to any rule of inference, then they will no longer count as inferring. They tried to perform an inference, but did not succeed. Rules of inference tell us what we can infer, e.g., from *P* and  $P \supset Q$ , one may infer *Q*. Of course, if we choose to follow a different rule, and conclude  $P \ \& \ (P \supset Q)$  from the same premises, we are not violating *modus ponens*, but following *&-introduction*. But if no valid rule of inference is followed, such as if we concluded  $\neg P$ , then this can be construed as not doing any of the things that these rules of inference allow one to infer. No rule of inference is followed, and hence on the constitutive understanding, no inference has taken place.

By contrast, *normative principles* tell us only how things *ought to be*, or what we *ought to do*, even if they actually fail to be so, or we fail to do so. Normative laws for *F*s function to separate the good *F*s from the bad, the correct from the incorrect. These kinds of laws tell us what is permissible and not permissible for *F*s. E.g., if we take rules of inference to be normative laws, the rule *modus ponens* will tell us something about *correct* inference. On this construal of laws, if someone reasons incorrectly, following no valid rules of inference, they may still count as inferring, but as inferring *badly*.

Finally, a *constitutive-normative law* also functions to separate the *F*s from the non-*F*s, not in terms of whether or not something conforms to or

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<sup>9</sup>It might be argued that laws of nature admit of exceptions, and so the general statements I want to call ‘laws’ will not even be true. I don’t have space to go into this issue. At least I take it to be plausible that there are some general truths about nature, even if one can quibble over whether these are what some people count as laws of nature.

<sup>10</sup>

$$\frac{P, P \supset Q}{Q}$$

violates the law, but in terms of whether something is *subject to* or *evaluable in light of* the law. So if rules of inference, such as *modus ponens*, were to be understood in this way, in order to count as inferring one's activity must count as right or wrong in light of *modus ponens* (and other rules of inference). If one were to reason without following any valid rule of inference, but that didn't count as getting something *wrong*, or if one were to reason in accordance with a valid rule, but that didn't count as getting something *right*, then one wouldn't count as inferring.

Suppose Pedro believes that  $p$ , and believes that  $p \supset q$ , and then goes on to infer  $\langle \neg q \rangle$  from  $\langle p \rangle$  and  $\langle p \supset q \rangle$ . A constitutivist about laws of inference would say that this case is misdescribed. Pedro's activity is not properly called "inferring", because he has done something that is against the very nature of inferring. A normativist about laws of inference would say that Pedro did infer, but that his inference was incorrect. A constitutive-normativist would say that Pedro is inferring only if what he is doing is properly evaluable (as wrong) in light of rules of inference. So, how should we understand "laws" in the idea of laws of logic as laws of thought: as constitutive, normative, or constitutive-normative?

### 3.3.3 Constitutive Laws

If the laws of thought are understood constitutively, and the laws of thought are the laws of logic, then we should be unable to think illogically. In general, this kind of view generates the idea of a limit to thought. To go beyond the laws of logic is literally *unthinkable*. The idea of a limit to thought beyond which we cannot think is an interesting topic in its own right.<sup>11</sup> Whether or not the notion of such a limit is coherent might be an indirect way to assess the constitutive view of laws of thought, given that the latter appears to bear some commitment to such a limit. However, there is a more straightforward way to show that a constitutive understanding of laws of thought, as underlying laws of logic, fails.

The problem is that this view is committed to our being utterly unable, not merely not permitted, to think illogically. This is just false. We think illogically all the time: we make mistakes in inference and reasoning, we hold contradictory beliefs, we find fallacies convincing, and so on. Now, the constitutivist may reply that when we make such mistakes, we in fact do not count as thinking; there is the mere illusion of thought and reasoning, but we are in fact engaging in some distinct mental activity. However, this kind of response cannot be maintained.

First, we are often able to recognise our logical mistakes, either by ourselves or through the help of others, and go on to correct ourselves in a reasonable way. E.g., suppose Pedro reasons as follows: If it's a weekday,

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<sup>11</sup>E.g., see Conant (1991) and Priest (1991).

the bank will be open; it's not a weekday; therefore the bank will not be open. But Maria points out to him that he has fallen into the fallacious trap of denying the antecedent, in assuming that because  $P$  implies  $Q$ ,  $\neg P$  will imply  $\neg Q$ . She points out that, although it is true that the bank is open on weekdays, there are other conditions under which the bank is open, e.g. on Saturday mornings. It is plausible to assume that Pedro is capable of recognising where he went wrong, and adjusting his reasoning accordingly. However, if what he was doing before Maria intervened wasn't even thought, how is it that he is able to rationally reflect on what he was doing, and relate it in a suitable way to what Maria says such that he can transform it into a correct inference? I contend that it doesn't make sense to characterize the case in terms of two different *kinds* of mental activity, thought and something else. Rather, this is simply a case of mistaken thought and inference, followed by corrected thought and inference.

The point can also be made in relation to one particular candidate law of thought (logic), the law of non-contradiction. This law is stated in a variety of different ways: for the purposes of this point I will take it to be:  $\forall p \neg(p \ \& \ \neg p)$ . Understood as a constitutive law of thought, this is supposed to represent how we in fact always think, i.e. that no thought is contradictory (of the form  $p \ \& \ \neg p$ ). Any instance of a thought that  $p \ \& \ \neg p$  will violate the law, and hence should not count as thinking. By 'think' here I mean to include something as minimal as 'entertaining a proposition', as well as more robust thoughts such as 'opining that  $p$ ', drawing inferences, and so on. So the implication is that we cannot even entertain propositions with a contradictory content, i.e. that  $p \ \& \ \neg p$ . But we can. First, one might appeal to anecdotal or introspective evidence: Graham Priest would surely testify that he thinks contradictions frequently, and with ease. Furthermore, if we can't think a proposition, how can we know that it is a contradictory proposition? One might reply that we may take not being able to think the proposition as evidence for it being contradictory, however, it might be illogical for other reasons, or it might not be a well-formed proposition. So we are left wondering how we know the proposition is contradictory if we can't think it. In addition, it is often claimed that contradictions are false. But how can we determine that a proposition is false if it cannot be thought? Another point is that if I can perfectly well think that  $p$ , and I can perfectly well think that  $\neg p$ , why should thinking them in sufficiently close proximity prevent me from being able to think either one? I think we can conclude that it is hopeless to argue that contradictions are unthinkable, in the sense that we are literally not able to think them.<sup>12</sup>

In short, understanding laws of thought as constitutive will not provide a suitable account of laws of logic in terms of laws of thought, because we

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<sup>12</sup>See Priest (1998b,a) for more detailed arguments against thinking that contradictions have no thinkable propositional content.

break the laws of logic all the time when thinking.

### 3.3.4 Norms for Thought

The broad alternative to a constitutive reading of laws of thought is a normative one. Normativity has to do with standards, prescriptions and rules. A “norm” provides a rule, or a standard, or a prescription for behaviour or action, which may or may not be followed. If a norm is not followed, this is accompanied by a notion of somehow being *incorrect* or *wrong* or *liable for punishment*. Likewise, following a norm is deemed as being *correct* or *right* or perhaps *liable for praise*.

A norm is a rule for behaviour, or a definite pattern of behaviour, departure from which renders a person liable to some kind of censure. In this sense there are grammatical norms, and norms of etiquette, as well as moral norms. Indeed, almost all aspects of human behaviour will be to some extent norm-governed. . . . (Blackburn, 1994, 1996, p. 265)

Normativity consists in the fact that there is a set of ideals, standards, guides, recommendations, commands, rules, principles, laws, and so on (hence “norms”) that govern human beliefs and intentional actions. . . . As I will construe it, the normativity of something X is expressed by saying that there is something humans *ought to (or may) believe or do because of X*. In other words, the normativity of X is the role X plays in the giving of reasons for human belief or intentional action, that is, in the justification of human belief or intentional action. More precisely, then, X is normative if and only if X can be directly cited as a reason for human belief or intentional action, or at least X is intrinsic to some reason for human belief or intentional action. (2006, pp. 202–3)

A normative law of thought, then, will provide reasons, obligations, permissions and the like to think in certain ways. Suppose something like  $\forall p \neg(p \ \& \ \neg p)$  were a normative law of thought. This could be understood to mean something like: one ought not to think, for any proposition  $p$ , that both it and its negation are true. Note that these laws may come apart from how we in fact think and reason: we may often fall short of what we ought to do. This kind of understanding of laws of logic and thought as normative is demonstrated by the “oughts” in the quotations from Kant and Frege above (section 3.3.2).

However, the story does not stop there. One can always ask: *why* does something provide reasons for something else? And there are different answers to this question. There are a number of different ways something

might be normative. Hanna (2006, § 7.1) highlights some helpful distinctions. Consider the normativity of something  $X$ . First, the normativity of  $X$  might be an *intrinsic* or *extrinsic* feature of it.<sup>13</sup> If  $X$  is extrinsically normative,  $X$  depends for its normativity on something else external to it. E.g., logical laws might be taken to be *intrinsically non-normative*, e.g. a purely descriptive or factual science (perhaps describing the behaviour of truth-bearers), but to provide norms when considered in relation to something else, such as certain other interests or practices (such as the need to preserve truth in when engaged in empirical science). Second,  $X$  might have *hypothetical*, i.e. conditional or instrumental, normativity, or *categorical*, i.e. unconditional or non-instrumental normativity.

Something  $X$  is categorically normative if and only if humans ought to believe or do  $Y$  because of  $X$  under all sets of circumstances and primarily because of  $X$  alone, whereas something  $X$  is hypothetically normative if and only if humans ought to believe or do  $Y$  because of  $X$  only in certain circumstances and primarily because of something else  $Z$ . (Hanna, 2006, p. 203)

How might it be that a class of certain principles are normative laws of thought? First, there might be some other norm governing thought, e.g., that thought ought to aim at the truth, or that thought and reasoning ought to be consistent. This, in turn, will bestow normativity on some further things. Suppose that the laws of logic constitute the most general truths. Then, if thought ought to aim at the truth, then thought ought surely to aim to cohere with these most general truths. Or, wherever the laws of logic find their source, if thought ought to be consistent, then thought ought surely to strive to conform to the laws of logic, given that these laws are concerned with relations such as consistency. On these kinds of views, the laws of logic provide norms for how one ought to think. However, this is not because the laws of logic are straightforwardly laws of thought. Rather, there are more fundamental laws of thought (such as the norm that thought ought to aim at the truth), which furnish the laws of logic only with second-hand normativity. If the norms directly governing thought were different, e.g. if thought was to aim at happiness (even at the price of self-delusion), then the laws of logic might *not* provide laws for how we ought to think after all. The laws of logic, by this view, are independent of thought. They are general truths about the world, or some such. So if the norms directly governing thought were to change, the laws of logic would not. They would merely cease to be relevant to our thinking. In

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<sup>13</sup>Hanna expands upon intrinsic features as being necessary features, and extrinsic features as being accidental features (2006, p. 203). This is not particularly helpful in the context of a discussion about modality. I will assume a working notion of an intrinsic feature as one that a lonely object could have, i.e. even if there were no other entities, the feature could still be had. (See Lewis (1983))



exploring the prospects of a laws of thought account of logical laws and logical necessity, then, this kind of view doesn't help at all, as it ultimately sets laws of thought aside. Note, the kind of normativity afforded to laws of logic here is merely extrinsic (depending on standards for thought external to logic) and potentially hypothetical (depending on whether those standards for thought apply in all circumstances).

A more promising approach is to consider the laws of logic as more directly connected to thought, with no intermediary norm. The laws of logic, whatever they are, directly constitute norms for how we ought to think.<sup>14</sup> However, note that even if an example of such a (direct) norm were to be 'One ought think, for all propositions  $p$ ,  $\neg(p \ \& \ \neg p)$ ', one could still question *why* that is, and give extrinsic or hypothetical reasons. One ought to think like that, in circumstances where one is engaged in empirical science, say. Ultimately, I shall argue that there is a certain phenomenon, the 'logocentric predicament', which is best explained if the laws of logic provide constitutive norms for thought, such that if one is not subject to these norms, one is not thinking. This should serve to rule out an account of laws of logic as having hypothetical normativity: they should turn out to apply in all circumstances of thinking. This should also serve to rule out a view where logical laws are extrinsically normative: this would require that there be an external element determining what constitutes thought, beyond thought itself. Unless one wants to postulate some kind of God decreeing what it is to be something,<sup>15</sup> I do not see what such an external element could be.

In short, understanding the laws of thought as *normative* includes different ways that a law might be normative. Some kinds of normativity seem more appropriate for a laws of thought account of the laws of logic. At this stage it is too early to say what kind of normativity these laws will be afforded on such a view. The next task is to argue that the laws of logic are indeed normative laws of thought. The conclusion of the argument should tell us what kind of normativity we are dealing with.

## 3.4 Logic and Rational Indubitability

### 3.4.1 A Logocentric Predicament?

Why think that the laws of logic are laws of thought? The strategy of the following will be something like an argument to the best explanation. I will

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<sup>14</sup>There are two ways one might understand "we ought to think in accordance with the laws of logic". Either *we ought to think in accordance with the laws, whatever they are*, where the laws are described and not specified, or *we ought to think in accordance with law  $L_1$ , law  $L_2$ , etc.*, where the laws themselves appear in the law of thought. In this present case, I mean the latter.

<sup>15</sup>Which I don't

first introduce a phenomenon I call a “logocentric predicament”, regarding principles that thinkers are not able to rationally reject or doubt. The challenge is to then provide an explanation of this phenomenon. I will argue that one very good explanation is that the laws of logic are constitutive-normative laws of thought. I will contrast this other views of laws of logic, which I argue cannot (yet) provide a satisfactory explanation. I will not have space to explore every possible explanation, hence I can’t quite claim that my “laws of thought” explanation is the *best*, but I will conclude that it is at least *very good*, and *better than* the others I discuss.

“Logocentric predicament” is a phrase coined for the circumstance that we find ourselves in when we try to give a justification of logical laws. This purported predicament is borne out when we try to justify or give an account of our logical practices, because we always seem to end up relying on logic to do so.

[T]he attempt to formulate the foundations of logic is rendered arduous by a . . . “logocentric” predicament. In order to give an account of logic, we must presuppose and employ logic. (Sheffer, 1926, p. 228)

Often, when giving a justification of some or other practice or rule, we will employ logical reasoning. But how then can we justify the validity of logical rules? It doesn’t seem right to use the very thing to be justified in its justification. If this is true in general, then it doesn’t seem right to use logical principles to justify logical principles. But then, what else is there to be used?

I don’t want to focus on this predicament which is framed in terms of justification. Rather, there is a similar “predicament” in the vicinity. The idea is that there are some logical principles which do not admit of rational doubt or rejection, or if they do, only at a prohibitive cost.<sup>16</sup> There is an important sense in which one cannot properly question these principles. I take this to be an interesting state of affairs to find oneself in, and that it demands explanation. Why do certain principles have such a binding effect on our thought? Note that if one cannot doubt a principle, the task of justifying it seems rather premature. But the deeper predicament is the rational indubitability of a principle, not the seeming redundancy of a justification for the principle. To this end, I will consider a number of examples of such potentiality indubitable principles.

### 3.4.2 McFetridge Again

The first example is simply the argument I discussed in section 3.2.2: McFetridge’s argument that we are constrained to believe in logical necessity.

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<sup>16</sup>By *rational* doubt or rejection, I mean to rule out simply stamping one’s foot and refusing to accept a principle, even in the face of compelling reasons.

Recall, McFetridge characterized a belief in there being logically (absolutely) necessarily truth-preserving rules of inference in terms of preparedness to employ a rule under any supposition whatsoever. He gave an argument to show that we cannot rationally abandon such a belief, on pain of rendering ourselves unable to reason from suppositions at all. Of course one cannot maintain that it is impossible for someone to believe that there is no rule of inference which is valid in reasoning from any supposition whatsoever. The point is rather that such a belief cannot be maintained in the face of reasonable, rational consideration. McFetridge concludes that there is a constraint on what we are bound to believe (if we think about it hard enough). It might not show that we are always bound to try to follow these rules, but at least it shows that we are bound to believe in them. In terms of introducing a new predicament, it seems we have the following (meta)logical principle which rational thinkers are bound to believe, given sufficient reflection.

LN There is some rule of inference  $M$  such that there is no supposition  $r$  such that, if it were the case that  $r$ ,  $M$  would not preserve truth.

One might worry that in order to have this belief, one will need to possess concepts such as *supposition*, *truth preservation* and *inference rule*. Doesn't this mean that such a principle only binds thinkers who have attended logic classes or read logic books? There are two responses to this worry, one brief, one rather more important. First, recall that McFetridge characterized the belief in LN in terms of behaviour: the preparedness to employ a rule of inference in reasoning from any supposition whatsoever. One can avoid the conceptual worry by simply framing the constraint in terms of this kind of behaviour. Our practice of reasoning from suppositions would break down if it did not allow, and indeed require, reasoners to employ some rules of inference in any circumstances. However, no amount of inferential behaviour will be able to show that someone accepts certain rules as valid in any circumstances, simply because we are finite beings and can only achieve a finite amount of reasoning in a lifetime, where there will be many more possible circumstances in which reasoning may take place.

This leads to my second point. McFetridge's conclusion cannot be that all thinkers are constrained to explicitly assent to the proposition: *There is some rule of inference  $M$  such that there is no supposition  $r$  such that, if it were the case that  $r$ ,  $M$  would not preserve truth.* It is indeed likely that very few thinkers will ever conform to this constraint, even if they have the requisite concepts.<sup>17</sup> Rather, such a constraint provides a standard. *If* one should stumble across matters pertaining to LN, one is constrained to

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<sup>17</sup>E.g., all philosophy undergraduates may have the requisite concepts, yet never go on to read McFetridge or consider the same kinds of questions.

believe LN rather than  $\neg$ LN (one ought to behave one way, rather than another). The former is correct, the latter incorrect. And if, after suitable reflection, one nevertheless believes  $\neg$ LN then it looks like something has gone seriously wrong. If someone really understood all the steps in the argument, and still concluded that  $\neg$ LN, one might begin to doubt whether they were a rational thinker at all. In short, it doesn't matter if a thinker does not actually occurrently assent to LN, either because the question hasn't arisen, or because they do not have the requisite concepts, or for some similar reason. The principle provides a standard for going right and wrong. Not considering LN might be taken to be neutral, but once it is considered, one had better conform to the principle on pain of being open to serious censure.

What arises is not so much a *predicament*, such as if we wanted to reject this principle, yet cannot (analogous to wanting to give a certain kind of justification for deduction, but being unable to). However, I take McFetridge's conclusion to introduce a similar phenomenon. It seems that there is at least one principle that reasoners cannot rationally reject, on pain of losing any hope of being able to reason at all. The phenomenon to be explained is therefore: how is it that such principles, which look to be logical in nature, have such a hold on thinkers?

### 3.4.3 The Minimal Principle of Contradiction

A further example to be considered is the Minimal Principle of Contradiction.

MPC Not every statement is true.

Thompson (1981), following Putnam (1978), argues that MPC is true and known *a priori* in virtue of its being a presupposition of thought and explanation.

Some truths of logic may be “so basic that the notion of *explanation* collapses when we try to ‘explain’ why they are true.” So suggests Putnam. As an example of such a truth, he mentions “the Minimal Principle of Contradiction (*Not every statement is true*).” In suggesting that the notion of explanation collapses when we try to explain why this principle is true, he says he does not mean “that there is something ‘unexplainable’ here.” The point is that “there is simply no room for an explanation of what is presupposed by every explanatory activity.” (Thompson, 1981, pp. 458–459)

Insofar as MPC can be said to be a presupposition of thought and explanation, it is a principle that we are bound to accept if we are to think or engage in explanatory practices at all.

Thompson invites us to consider a thought experiment: imagine trying to make meaningful utterances in a situation where you have to accept every statement as true. The idea is that such a thought experiment is self-undermining. In order to even imagine such a scenario, one must be adhering to the minimal principle of contradiction. So one can hardly use the thought experiment in a justification of MPC.

[I]n imagining the situation in question, we presuppose the very principle we are supposed to learn from the thought experiment. In order to imagine ourselves in a situation in which we reject the minimal principle of contradiction, we must take it to be true that in this situation we reject the principle and false that we accept it. But then we take for granted at the start that not every statement is true, which is just what the experience is supposed to show. This predicament is unavoidable. (Thompson, 1981, p. 460)

Thompson's argument here is difficult to tease out. Moreover, there are a number of *prima facie* problems. E.g., imagination is not closed under logical consequence: just because I imagine myself in a situation where I reject MPC, it does not follow that I imagine that in that situation it is true that I reject MPC and false that I accept it. Moreover, it appears that some kind of assumption against true contradictions is being smuggled in. Even if in this imagined situation it is true that I reject MPC, why shouldn't it also be true that I accept MPC? We are, after all, in the business of looking for some kind of warrant or justification to believe in MPC, so prejudice against contradictions surely isn't allowed.

I would like to offer a simpler route into highlighting the curious nature of MPC. Let us recap what we are dealing with, namely, the statement:

Not every statement is true.

Ultimately I want to know if it is possible for thinkers like us to rationally doubt or reject such a principle. So, consider the question: what would it be to rationally doubt this statement? Well, it would be to seriously entertain, or to try to assert, something like the following:

It might not be true that not every statement is true.<sup>18</sup>

In rationally considering how things might be, it will be natural to consider how things would be if things were indeed that way. So, if it were not true that not every statement is true, how would things be?

If it were not true that not every statement is true, then it would be true that some statement is not true.

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<sup>18</sup>The 'might' here should be read as epistemic possibility. What is up for discussion is *doubt*, not the thought that MPC is contingent.

From it being true that some statement is not true it follows that

Not every statement is true.

Note, I have not claimed here that anything is false. Simply that, in considering how things would be were MPC not to be true, it would turn out that not every statement would be true, and hence that MPC would be true after all.

This is not intended to be an argument for the *truth* of MPC. Rather, the purpose is to highlight the relationship between MPC and rational doubt. What is it to doubt something? At the very least it will involve entertaining the thought that it might not be true.<sup>19</sup> In entertaining that the object of doubt might not be true, one is immediately entertaining MPC. So how can one be expected to doubt MPC, if the very mechanism of doubting brings in the thought that MPC might be true? Taking a step further, to rational rejection, again, what is it to reject something? It is to affirm that it is not true.<sup>20</sup> And of course, if something is not true, then MPC is true. So the very mechanism of rejection brings in the thought that MPC is true.

What should we make of this? I want to take this as further evidence for the existence of a genuine phenomenon, whereby there are certain logical principles that we cannot reject in our thinking. It seems that thinkers cannot rationally reject MPC. In engaging in doubt or rejection, one thereby entertains or affirms MPC.

Thompson's main purpose is to argue that the principle can be classed as *a priori*, but he also draws some conclusions about thought.

We discover that we presuppose the principle of contradiction in all our thinking only by discovering our inability to think in violation of it regardless of what we are thinking about and of how we express our thought externally. (Thompson, 1981, p. 463)

This highlights an important point. Thompson takes us to be bound to think *in accordance with* MPC. In contrast, I want to claim that we are bound to take our thought to be *right or wrong in light of* MPC. I argued above that our ability to think a contradiction shows that we are able to think in violation of logical laws. Thompson claims otherwise.

When we accuse someone of illogical (and not just irrational) thought, what we mean is that the person's efforts at thought have completely failed. His thoughts cancel each other and he has failed to think anything at all. (Thompson, 1981, p. 471)

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<sup>19</sup>Even if more is involved, the thought is at least entertained.

<sup>20</sup>Rejectivists argue that acceptance and rejection are two distinct mental or speech acts, such that rejection of a proposition  $p$  is not the same thing as acceptance of its negation  $\neg p$ . However, rejection of  $p$  and acceptance of  $\neg p$  are still logically equivalent, which is all that is presently required. See Smiley (1996).

This still seems wrong. Even in the arguments I have just considered, one can certainly *think* that every statement is true, but on closer inspection, it will always turn out that that is false. Getting something wrong does not constitute not thinking. Rather, as I argued above, one has been able to make progress and learn something on the basis of considering the statement or thought that every statement is true (i.e. that one cannot rationally sustain a belief in such a statement).

It should be noted that Thompson and I have slightly different notions of “thinking” in mind. I have been working with a minimal notion where merely entertaining a proposition counts as thought. Thompson’s notion might be richer, requiring something more akin to imagining or picturing how things would be according to the proposition. The view that we cannot fully picture a contradictory situation might be easier to defend, however, what then are we to say about entertaining and understanding a contradictory proposition? If that doesn’t count as thought, albeit rather simple thought, then the notion of thought in play is too demanding.

Thompson offers a rather obscure argument to the contrary.

It might seem wrong to say that with illogical thought one fails to think anything at all. One thinks a contradiction. But we can think a contradiction, think that both  $p$  and not- $p$ , only by conforming to the principle of contradiction. Without this conformity, we would have to think not only both  $p$  and not- $p$  but also its negation, neither  $p$  nor not- $p$ . With absolute nonconformity, with strictly illogical thought, we get endless iteration of this process. We do not think merely that both, both  $p$  and not- $p$  and neither  $p$  nor not- $p$ , but also that neither, neither both  $p$  and not- $p$  nor neither  $p$  nor not- $p$ . We thus think nothing at all. If we could not contradict ourselves we could not think. We think a contradiction only when we think it *as such*, as thought that cancels itself. In thinking a contradiction without thinking it as such, we fail to think anything at all—we are illogical. (Thompson, 1981, p. 471, fn. 8)

One point he might be intending to make here is that, supposing we can take contradictions to be true in thought, if the minimal principle of contradiction were not presupposed, we would have to take not only the contradiction to be true, but its negation, and so on and so forth. But this kind of result might be taken to follow from a failure of MPC in any case. If everything is true, and I think that  $p$  is true, then I must also think that  $\neg p$  is true, and so on and so forth. But that is not a problem peculiar to thinking contradictions.

The point specific to contradictions appears to be that in thinking  $p$  and  $\neg p$ , these contradictory propositions cancel each other out, hence there is no thought at all. If for every proposition  $p$  we think both  $p$  and  $\neg p$ , this would

then amount to cancelling all (propositional) thought. This cancellation view of contradictions is illustrated nicely by Strawson.<sup>21</sup>

Suppose a man sets out to walk to a certain place; but, when he gets half-way there, turns round and comes back again. This may not be pointless. He may, after all, have wanted only exercise. But from the point of view of a change of position, it is as if he had never set out. And so a man who contradicts himself may have succeeded in exercising his vocal chords. But from the point of view of imparting information, of communicating facts (or falsehoods) it is as if he had never opened his mouth. He utters words, but does not say anything. Or he might be compared with a man who makes as if to give something away and then takes it back again. He arouses expectations which he does not fulfil; and this may have been his purpose. Similarly, it may have been the purpose of a man who contradicts himself just to create puzzlement. The point is that the *standard* purpose of speech, the intention to communicate something, is frustrated by self-contradiction. Contradicting oneself is like writing something down and then erasing it, or putting a line through it. A contradiction cancels itself and leaves nothing. (Strawson, 1952, pp. 2–3)

I turn again to my arguments of section 3.3.3. Proponents of this view of contradictions have to explain how it is that we succeed in thinking and understanding contradictions to the point that we can (a) recognize that they are contradictions, (b) claim that they are false, and (c) correct ourselves when contradictions are pointed out to us in a reasonable and rational manner.

#### 3.4.4 The Minimal Logical Toolkit

In “Basic Logical Knowledge”, Hale explores the idea of a minimal toolkit of logical principles and inference rules for reasoning about logic, which are “rationally indubitable”. Such principles form the backbone of doubting, questioning and reasoning about logical principles, and so are not properly subject to the same kinds of doubt themselves.

The target of Hale’s paper is to consider ‘whether there is any basic logical knowledge and if there is, how this is possible’ (2002a, p. 2). Logical knowledge is understood as knowledge *about* logic, not knowledge arising out of the *use* of logic.

Logical knowledge is, roughly speaking, knowledge *about* logic—such as knowledge that a certain principle of inference necessarily

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<sup>21</sup>Strawson puts things in terms of *speech*, rather than *thought*.



preserves truth, or that every proposition of a certain form must be true—and so is not the same thing as knowledge that is gained by *using* logic, i.e. *inferential* knowledge. (Hale, 2002a, p. 1)

Logical knowledge is specifically a species of *modal* knowledge, given that it concerns knowledge such as that a certain rule of inference *necessarily* preserves truth, or that every proposition of a certain form *must* be true. Setting aside Quinean worries regarding whether there can be such a thing as modal knowledge at all, Hale argues that the peculiarly logical brand of modal knowledge at issue is unlikely to be *a posteriori* knowledge, but should be expected to be *a priori*. *Basic* logical knowledge won't make any appeal to further logical knowledge. E.g., take the case of knowledge that a principle of inference is sound (necessarily truth-preserving). If this knowledge makes appeal to the soundness of some other principle of inference, then it will no longer count as basic knowledge, but only derived logical knowledge, based on some other logical knowledge (which may or may not be basic itself).

Hale then introduces a dilemma. Knowledge is either inferential (first horn) or non-inferential (second horn). On the first horn of the dilemma we face the problem that basic logical knowledge cannot be inferential: it would no longer be basic, but rather the rule of inference used would be the candidate for basic logical knowledge. On the second horn, the problem is that the going kinds of non-inferential knowledge, e.g. perceptual knowledge, don't seem like they will be up to the job of giving us the kind of knowledge we're looking for, i.e. knowledge of generalities and necessities. The challenge is to try to make one side of the dilemma work.

Minimally, one must either explain how one can use a basic rule of inference in arriving at the conclusion that that very rule of inference is necessarily truth-preserving without being involved in some vicious circularity, or provide an alternative, credible, model for non-inferential knowledge which avoids the shortcomings of any perceptual or inner-perceptual model. (Hale, 2002a, p. 6)

The first horn of the dilemma, going inferential, is rejected by Hale. If inferential knowledge of the soundness of a rule of inference  $R$  is to have any chance of being basic, the inferences we engage in to come to know  $R$  cannot rely upon the soundness of some other rule of inference. So, if basic logical knowledge of the soundness of  $R$  is to be inferential, the inference will have to make use of the only rule of inference left,  $R$  itself. This opens up the account to the charge of circularity: using a rule of inference  $R$ , and relying upon its being sound, in an argument to the conclusion that  $R$  is sound, looks viciously circular. This might not be straightforward circularity, where the conclusion of an inference occurs as a premise, but it does look like a case of rule-circularity, where an inference to the conclusion that a rule of inference is sound uses that selfsame rule of inference.

One way to dispel the worry that rule-circularity is *vicious* is to appeal to Dummett's distinction between *suasive* and *explanatory* arguments. A *suasive* argument is intended to persuade someone, already believing the premises, of the truth of the conclusion. In contrast, an *explanatory* argument seeks to explain why a conclusion is true, by appeal to the premises, where the conclusion is already known or taken to be true (see Dummett (1973, 1978)).

Is rule-circularity always vicious? Dummett argues that it need not be. If an argument is intended to *persuade* someone who doubts the soundness of a rule that that rule is sound, and the argument uses that rule, then it will be just as useless as an argument that involves premiss-circularity. But if instead the argument is an 'explanatory' (as opposed to 'suasive') argument—if it is aimed at *explaining* why its conclusion is true, as opposed to *proving* that it is true—then rule-circularity, Dummett claims, may not be harmful, since in giving an explanation, we may quite properly take for granted the fact we are trying to explain. (Hale, 2002a, p. 7–8)

Recall, however, that Hale is concerned with *knowledge* that a rule is necessarily truth-preserving. As such, it is not clear that a (non-problematically circular) explanatory argument is appropriate. The challenge is precisely to explain how we might come to know that *R* is sound. But an explanatory argument takes for granted that it is already accepted that *R* is sound, and merely seeks to give an explanation. Hale agrees that Dummett's distinction is not of help here, for this and other reasons.

Although the argument is to be viewed as an explanatory rather than a *suasive* one, what we are trying to find is an explanation *how we may come to know* that *modus ponens* is truth-preserving. It seems, in general, that a good explanation of how we may come to know something ought to indicate a route by which someone could come to know it—so that, in the present case, the argument must after all be capable of being used by someone who is unsure about the rule as a means of gaining assurance that it is safe to use it. But it seems that a rule-circular argument could not serve as such a means. (Hale, 2002a, p. 8)

With the inferential horn looking unpromising, Hale moves to consider the second horn: to develop some account of non-inferential knowledge suitable to account for logical knowledge. Hale starts by considering a view which draws on, or is 'grounded in, the conditions for understanding the logical constants' (Hale, 2002a, p. 9). If understanding the logical constants involves grasping or accepting certain rules of inference concerning those

logical expressions, then it looks like we may have some epistemic access to those rules which does not involve reasoning from antecedent premises, but which neither involves something like perception. However, Hale is quick to point out that *acceptance* of certain basic patterns of inference involved in understanding of a logical operator does not equal the *truth* or *validity* of those patterns of inference. Provision must therefore be made for an important extra step in the account.

Thus Hale introduces the following key distinction:

- A Explaining *how we can come to know* that basic rules such as *modus ponens* are sound.
- B Explaining *why it is not possible intelligently* (ie clear-headedly and coherently) *to doubt* the soundness of basic rules such as this one. (Hale, 2002a, p. 10)

The strategy of the rest of Hale’s paper is as follows. Setting aside project A for the time being, Hale considers whether there are indeed “rationally indubitable” rules of inference that it does not make intelligent sense to doubt. He argues that there is a “minimal toolkit” of logical principles that are involved in the very practices of doubting and reasoning about the soundness of logical principles. Hence, it makes no good sense to doubt the soundness of these very principles in the minimal toolkit. If the argument succeeds, this will contribute to the logocentric predicament I have already introduced with reference to McFetridge and Thompson. Yet again, we will have evidence that there are some (logical) principles that are so basic to reasoning, explaining or doubting that we cannot rationally reject or doubt them.

The argument hinges on the idea that, if part of what it is to understand a logical constant is to accept certain principles of inference concerning that logical constant, then to doubt these principles will amount to misunderstanding the logical constants. So there is no room for intelligent or rational doubt of these principles, as opposed to just missing the point.

The fact that acceptance of (at least sufficiently simple instances of) basic patterns of inference featuring a logical operator is (at least partly) constitutive of understanding that operator has an important consequence—it means that one cannot regard anything which is recognisably an instance of the relevant inference pattern as unsound without convicting oneself of misunderstanding. (Hale, 2002a, p. 11)

First, Hale considers cases which look like genuine doubting of a candidate principle by a suitably intelligent person, such as McGee’s attack against *modus ponens*.<sup>22</sup> It is worth pausing to look at the kind of example

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<sup>22</sup>See McGee (1985). See Sinnott-Armstrong et al. (1986); Lowe (1987); Over (1987) for

McGee considers. If any logical principle is going to be one we cannot rationally reject, *modus ponens* is a likely candidate. It's a principle accepted by most, doubted by few, unlike some other logical principles which have a more contentious literature (such as *ex falso quodlibet*).

A representative example from McGee is the following:

Opinion polls taken just before the 1980 election showed the Republican Ronald Reagan decisively ahead of the Democrat Jimmy Carter, with the other Republican in the race, John Anderson, a distant third. Those apprised of the poll results believed, with good reason:

If a Republican wins the election, then if it's not Reagan who wins it will be Anderson.

A Republican will win the election.

Yet they did not have reason to believe

If it's not Reagan who wins, it will be Anderson.

(McGee, 1985, p. 462)

Note, this example, as well as the others put forward by McGee, is of the following general form (of which McGee himself is aware).

If  $\phi$ , then if  $\psi$  then  $\theta$ ;

$\phi$ ;

Therefore, if  $\psi$  then  $\theta$ .

McGee does not show that *any* use of *modus ponens* risks being unsound. Rather, the problem is restricted to more complex cases, where the propositions in the inference are themselves of a certain complexity. Hale suggests that with this caveat he can continue on with his proposed line of thought.

So one might continue to take the meaning of the conditional as (partially) constituted by acceptance of *modus ponens*—but in a suitably restricted version. The argument I develop in the remainder of this paper could be straightforwardly recast to suit such a restricted version of the rule. (Hale, 2002a, p. 11)

It is reasonable to assume such a restriction? Surely *modus ponens* is a simple inference form, blind to the content of premises, and hence blind to the logical complexity of premises? So, e.g., given the form

If  $A$  then  $B$ ;

$A$ ;

Therefore,  $B$ .

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critical responses.

each letter could stand for *any* proposition. That may be so, but Hale’s proposal (to take acceptance of a “suitably restricted” version of the rule as contributing to our understanding of the conditional) does not require that one establishes that *modus ponens* has restricted application. The point is simply that only (acceptance of) simple instances of the rule need be taken to contribute to understanding of the conditional. More complicated examples may confuse someone, and cause them to question an inference even though it is valid and they understand the constituent parts. Similarly, one would not accuse someone of misunderstanding the plus sign because they systematically make mistakes in complex sums. What counts is whether they can do simpler sums, e.g. ‘ $2 + 2 = 4$ ’.

Setting worries about *modus ponens* aside, Hale concludes that on this view of understanding ‘one cannot rationally entertain the idea of counterexamples’ to inference rules which are constitutive of understanding of the logical operators (Hale, 2002a, p. 12). A problem is then raised. Why is it that we cannot raise doubts about the validity of rules of inference, such as *modus ponens*, which are constitutive of our understanding of logical operators, yet we *can*, and indeed *should*, raise doubts about the validity of other rules of inference, such as the *tonk*-rules, which arguably are also constitutive of understanding “bad” logical operators, such as “tonk”.<sup>23</sup>

If one can argue: acceptance of *modus ponens* is required for understanding the conditional, so if a thinker supposes she can envisage a counter-example to it (i.e. a case in which it is true that *A* and that *if A then B* but not true that *B*), she must be confused, then one can just as well argue: acceptance of tonk-elimination is required for understanding ‘tonk’, so if a thinker supposes she can envisage a case in which it would be true that *A tonk B* but not true that *B*, she (too) must be confused. But the tonk rules are clearly duff. It must, therefore, be possible to entertain doubts—indeed, well-founded doubts—about them. So there has to be something wrong with the argument in their case. Since the argument for the conditional rules runs entirely parallel, it must likewise be defective. (Hale, 2002a, p. 13)

What makes the difference? This argument is based on the idea that to doubt the validity of a rule of inference will involve envisaging a counterexample to it. In order to side-step this worry, one need only show how some other way to doubt the validity of a rule of inference is appropriate in the case of tonk-rules, but not in the case of rules such as *modus ponens*. Hale considers what might be involved in doubting or questioning the validity of

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<sup>23</sup>

$$\frac{A}{A \text{ tonk } B} \qquad \frac{A \text{ tonk } B}{B}$$

a rule of inference. He takes it that this will involve *reasoning*. After all, the lack of conservativeness of the ‘tonk’ introduction and elimination rules is hardly something one can see at a glance: one needs to think about it and do some reasoning to realize that. Of course, one might just doubt with brute force, but then the doubt will not be rational or reasonable, but rather just a mindless attitude. Hale has already eliminated the option that a rule  $R$  be vindicated by reasoning involving itself, on pain of circularity. So, the reasoning going on in considering and questioning the validity of a rule  $R$  will have to involve rules other than  $R$ .

If what I’ve said is right, *any* vindication of a doubt about the conservativeness (or, more generally, the soundness) of *any* rules of inference must involve reasoning which doesn’t use those rules, but uses *some* other rules instead—rules whose reliability is assumed in that reasoning. It does not, of course, follow from this that there must be *some* rules whose reliability must, and may properly, be assumed in *any* demonstration we can give of the conservativeness or non-conservativeness (more generally, soundness or unsoundness) of *any* (other) rules. It does not *follow*, but it is—or so I believe—*true*. (Hale, 2002a, p. 17)

Hale takes the final step of suggesting that, not only will there be, for reasoning about any rule of inference  $R$ , some other rule  $R'$  which is assumed to be sound, but that there will be some rules which will be assumed to be sound when reasoning about any rule  $R$ .<sup>24</sup>

Some more concrete examples of rules we might expect to employ in reasoning about any rule of inference are suggested. E.g., rules governing the conditional and the universal quantifier.

Any rule(s) of inference whose soundness we may wish to consider will—or so I think we may assume—be both *general* and *conditional*—general, in the sense that their explicit formulation tells us that a conclusion of some specified general form may be drawn from premisses of some specified general form, and conditional, in the sense that they tell us that *given* premisses of the specified form, a conclusion of the specified form may be drawn. Any reasoning *about* what inferences they permit—as distinct from reasoning that simply uses those rules—will, at least if fully articulated, involve reasoning from explicit formulations of the rules. . . If this is right, then there is what might be called a *minimal kit* of inference rules—including at least rules for the conditional and universal quantifier—required for any

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<sup>24</sup>Hale points out that this does not follow logically. To think so would involve the same mistake as taking it to follow from everyone loving someone, that there is someone that everyone loves.

reasoning about the soundness of any rules of inference. (Hale, 2002a, p. 19)

This then gives us the minimal logical toolkit.

Hale concludes

My intermediate conclusion, in sum, is that the minimal rules are immune to doubt in a very strong sense. Given their meaning-constitutive character, they are not open to doubt of the first kind; and given their indispensable rôle in reasoning about soundness in general, they cannot be subjected to a genuine doubt on that score. Thus unless there is some way in which they might relevantly be questioned, we have—at least in outline—an explanation why there can be no intelligible doubt about them. (Hale, 2002a, p. 21)

Hale has answered project B by arguing that an account of our understanding of the logical constants in terms of (tacit) acceptance of certain inference rules gives rise to the conclusion that, in cases of reasoning about logical principles, there is a minimal toolkit of certain of these (understanding-constitutive) rules of inferences which are not open to rational doubt.

Hale has argued that reasoning *about* logic requires a minimal toolkit of logical principles which are not themselves open to rational criticism and doubt. My current aim is to establish that there is a phenomenon, a logocentric predicament, where there are certain logical principles that thinkers cannot rationally reject. Hale's conclusion is not general enough for my purposes: presumably one could opt out of any reasoning about logic at all. The conclusion needs to be extended to any thinking whatsoever, to the conclusion that there is a minimal toolkit of logical principles which are not open to rational criticism and doubt, *full stop*. Hale relies on there being certain features of reasoning about logic that one would always expect to find, e.g. generality, hence one will always need to employ the principles associated with those features, i.e. rules governing universal quantification. Even if this line of thought can be extended to cover any reasoning whatsoever, it does not carry over to any thinking whatsoever. If I am entertaining some singular proposition about an object, there is no obvious reason to expect my thinking here to involve generality and universal quantification. A proposition such as 'Socrates is a fool' does not contain any of the interesting logical concepts utilized by Hale such as conjunction, the conditional and universal generalization.

We can extend Hale's conclusion by noting that, whenever a logical principle is explicitly questioned, the minimal toolkit will enter in. The logocentric predicament I am trying to introduce concerns whether certain logical principles can be rationally rejected or not. So, as soon as that question arises, the minimal toolkit enters in, and it turns out that there are some

logical principles that are not open to the relevant kind of doubt. This is not to say that in all of our reasoning and thinking we adhere to these logical principles. I emphasised above that we can make logical mistakes. But these mistakes cannot be justified as correct after all, by rejecting a certain logical principle, where the very practice of this kind of doubting relies upon the validity of that logical principle. And so the minimal toolkit provides further evidence of the logocentric predicament; that there are some (logical) principles that thinkers cannot rationally reject.

Hale connects the rational indubitability of some logical principles with our understanding of logical constants. The understanding-constitutiveness of these principles rules out doubt of their soundness based on counterexamples to the rules: these would simply amount to cases of misunderstanding. The fact that certain principles are involved in any reasoning about logic rules out another kind of doubt of their soundness, namely that based on other reasoning about them. So far I have not committed myself to, or even properly considered, an account of understanding of the logical constants, let alone Hale's favoured version.

It might be objected that, without this commitment, I cannot make use of Hale's conclusion: the relevant principles will be open to rational doubt on the basis of purported counterexamples unless the meaning of the logical constants is constitutively tied to such principles. However, if "doubt by counterexample" involves some reasoning about the rule of inference under consideration, then it seems that general considerations to do with reasoning about logic will apply in any case. So the theory of understanding need not play as great a role here. If, however, "doubt by counterexample" *doesn't* involve any reasoning, then I fail to see how this can count as *rational* doubt. At least the purported counterexample must be recognized as being of a certain general form, and as having certain unexpected consequences etc. I do not see how this might be expected not to involve at least some of the distinctive features of reasoning about logic. So, whilst I am sympathetic towards Hale's underlying commitment to an account of understanding of logical constants, it does not look like such a commitment is required to get hold of the minimal toolkit. I take it that the element of Hale's view concerning the understanding of logical constants, even if it plays no essential role in arguing *that* some logical principles are immune to rational doubt, may provide an explanation as to *why* these principles are indubitable in this way. To give them up would be to give up logical concepts, such as the concept of conjunction, without which we could not conceptualize and engage in rational argument.

### 3.4.5 Logic and the Web of Belief

As a final consideration towards showing that we are in a logocentric predicament, I turn now to some arguments presented by Shapiro (2000) against a



Quinean approach to the status of logic, in particular, the view of Michael Resnik. I will not go into every detail of Shapiro's arguments. I want to focus on the elements which bring out some fresh reasons for thinking that some logical principles are immune to doubt, in the sense that they are immune to the kind of revision to which the Quinean takes all elements of the web of belief to be subject.

The Quinean view encompasses a kind of epistemic holism, whereby it is not single beliefs which are the objects of confirmation or disconfirmation by observation and experience. Rather, it is one's entire network of beliefs—the web of belief—which faces the “tribunal of experience” as a whole. Beliefs about logic and mathematics are included in this web. If there is some discrepancy between the web of belief and experiential evidence, then something in the web of belief will have to be modified. Modifications can in principle take place at any point in the web, although some areas, such as beliefs about logic and mathematics, will require exceptionally strong recalcitrant experience to force their revision. A given recalcitrant experience might prompt revision of the observation belief (one didn't see what one thought one did), revision of some general beliefs about the world (such as revising a scientific law in the light of new empirical evidence), or, in the most extreme cases, one may revise a law of logic. This Quinean position does not allow for the kind of predicament I have been arguing for: given the right kind of recalcitrant experience, *any* logical law might be up for revision and jettison, so *no* logical law can be immune to rational doubt or rejection.

In response to the Quinean, Shapiro contends that the process of belief revision will involve the use of logical principles, and in particular, the process of revision of logical beliefs will involve the use of some logical principles. Of which logic? The same questions regarding possible revision will be faced by this second logic, which will require the use of logical principles. And so on and so forth. So this kind of revision can never get going properly.

Since nothing is outside the web of belief, the Quinean would have it that the identification of the correct logic is part of the web. In particular, logic itself is subject to modification the way anything in the web is. Suppose someone is considering a change in logic, because less drastic measures are not working. Presumably the troubled theorist would follow the model for any change in the web. He would replace the old logic with the new one and see how it comes out. That is, the theorist would examine the consequences of the change in logic for the proposed new web of belief. Consequences? Which logic do we use to assess the consequences of different logics? Is there a correct logic for that, and is this super-logic also just a bunch of nodes in the current web? Regress threatens. Is the super-logic

analytic, a priori, or incorrigible? (Shapiro, 2000, p. 338)

The thought is that the process of maintenance of the web of belief in the light of experience will sometimes involve a reasoned, considered reaction to recalcitrant experience. We must be able to recognise that an experience is indeed not compatible with extant beliefs, and work out what beliefs will have to be changed in order to accommodate the recalcitrant experience with minimal trauma to the web. This, surely, will involve the use of some logical principles, such as those governing coherence and compatibility, and those governing the use of the conditional (to be able to properly consider the consequences of different changes). But if the very activities of web-maintenance and belief-revision presuppose reliance on some logical principles, this will cause trouble when it comes to revision of beliefs in those logical principles. What principles may one rely on when revising the very principles which underwrite the process of revision?

Resnik is correct that ‘theory development and testing must take place against a backdrop of principles and rules for generating consequences and commitments’ and that what ‘we call our logic is what we take as fixed in testing and developing our theories.’ So what is the ‘logic’ that we hold as fixed during the *logician’s* quest? (Shapiro, 2000, p. 346)

Shapiro notes that this kind of argument is similar to one presented by Crispin Wright against the Quinean position.<sup>25</sup>

Suppose that a logician has an intuition that a certain argument  $A$  is invalid, and wants to see if this intuition coheres with her evolving logical theory  $T$ . Sadly, she finds out that the invalidity conflicts with  $T$ . Consider the sentence:

(\*) The theory  $T$  is not in accord with the invalidity of the Argument  $A$ ,

presumably accepted by the theorist. We are told that *any* sentence is up for revision. Can our logician maintain both  $T$  and the invalidity of  $A$  by rejecting (\*)? That is, can our logician just reject the inference *from  $T$  to the validity of  $A$* ? Regress threatens. (Shapiro, 2000, p. 346)

Hale (1999) also presents a slightly different version of the argument. It begins:

Let  $\theta$  be some theory we are putting to the test and  $L$  our underlying logic. We derive from  $\theta$ , using  $L$ , various conditional

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<sup>25</sup>This argument is also considered in Hale (1999), and used to bolster his defence of McFetridge’s argument, as discussed in section 3.2.2.

statements whose antecedents describe observationally checkable initial conditions, and whose consequents specify observable predicted outcomes. Let  $I \rightarrow P$  be any such. A series of observations  $E$  will be recalcitrant (more fully, recalcitrant with respect to  $\theta + L$ ) if it provides, or appears to provide, grounds to accept  $I$  but reject  $P$ . (1999, p. 37)

Now, in the case where  $E$  is recalcitrant, the Quinean allows a number of revisionary moves. One might change theory  $\theta$ , such that it no longer constitutes premises from which  $I \rightarrow P$  is derivable. One might change logic  $L$ , such that it no longer yields a derivation of  $I \rightarrow P$  from  $\theta$ . Or one might change one's view of  $E$ , such that it is no longer viewed as recalcitrant. However, because the Quinean allows that all and any statements are part of the web of belief and thus should be candidates for revision, an additional option presents itself, *viz.* to reject the following statement W:

$$W \quad \theta \vdash_L I \rightarrow P$$

Regress now threatens for the following reason. Standardly, in choosing an option for revision, say between revising  $\theta$ , or revising  $L$ , the Quinean will bring in pragmatic considerations, comparing the options for their relative degrees of recalcitrance against already accepted beliefs and observations. However, this pragmatic comparison rests upon acceptance also of W: if W were not true, then the degree of recalcitrance of changes to, e.g.,  $\theta$  will come out as different. So the process of comparison of options all occurs conditional upon W. So different combinations containing acceptance and rejection of W must now be assessed for their degrees of recalcitrance. But inevitably there will be some further hypothesis underlying this exercise in comparison, analogous to statement W. Hale concludes

Since *all* such hypotheses are in the pragmatic melting pot along with all other statements, we have no progress—only regress.  
Hale (1999, p. 39)

Wright *et al* have shown that a Quinean view which excludes all statements, including logical statements, from a special status outside of the web of belief, cannot be sustained, as it will lead to vicious regress. Shapiro highlights an additional detail of Quine's view which pulls in this direction. Quine's thesis of the indeterminacy of meaning has it that linguistic data (such as affirmation and denial of sentences in contexts with different stimuli) systematically underdetermines an interpretation or translation of a linguistic agent. In Quine's familiar example, a linguist in the field, working to develop a translation manual for the language of a tribe, is presented with a tribe member exclaiming "Gavagai!" in the presence of a running rabbit. Not only is there insufficient evidence for choosing a translation from "There goes a rabbit!", "There goes an instance of rabbitiness!", "There go some

undetached rabbit-parts!” and so on, but Quine contends that each of the different possible translation manuals are equally correct—there is no fact of the matter in the case of meaning.

This is the general idea, but how are things supposed to go in the case of logical vocabulary? Shapiro notes:

Quine himself is ambivalent on the semantic status of the logical connectives. In later work, he suggests that if a radical translator has a native denying (or refusing to assent to) a logical truth, then we have strong evidence that we have mistranslated. The problem is that if we interpret a native as denying or refusing assent to a logical truth, then we have attributed a deep incoherence to him. Better to think we have made an error in translating than to attribute deep incoherence. (Shapiro, 2000, p. 356)

This echoes a point which I will attempt to draw out later, namely an important distinction between our attitudes towards rejection or denial of logical truths, and those towards rejection or denial of other purported truths *including metaphysical statements*. The “Gavagai” example seems to involve the field linguist assigning different folk metaphysical beliefs to the tribe members. The first translation ostensibly gives us a tribe believing in medium-sized physical objects and organisms, the second a tribe believing in property-instances rather than objects, the third a tribe believing in the existence of parts but not ontologically-robust wholes. We might find some of these world views (conceptual schemes?) strange, but we do not worry that we are consigning the tribe to incoherence. Our attitudes towards rejection of purported metaphysical truths is remarkably accepting and tolerant. In contrast, even Quine has noticed that our attitudes towards rejection of *logical* truths is far less sanguine. We might think that someone who is best interpreted as denying an important metaphysical truth to be gravely in error, but it seems that we can’t make any good sense at all of someone who is best interpreted as denying important logical truths. In the realm of radical translation, a translation that has a tribe member denying a logical truth should always be taken as evidence of a mistake in the translation, not evidence of the deep incoherence of the tribe member.

In sum, a Quinean will not be inclined to accept that there is a logocentric predicament, whereby there are certain logical principles which are immune to doubt, because they claim that any belief or statement can be subject to revision in the face of recalcitrant experience. Wright’s argument, evinced by Shapiro and Hale, has shown that even the Quinean must admit that there are some logical principles which lie outside the scope of revision. In addition, further remarks from Quine highlight a distinction between our attitudes to rejection or doubt of metaphysical, as opposed to logical, truths and principles.

## 3.5 Constitutive-Normative Laws of Thought

### 3.5.1 The *Explanandum*

I have provided a number of examples of principles, which we would normally deem to be logical, which it seems we cannot rationally reject, on pain of setting aside certain basic abilities to reason on the basis of a supposition, to engage in explanations, or to reason about logic itself. Such principles include

- There is some rule of inference  $M$  such that there is no supposition  $r$  such that, if it were the case that  $r$ ,  $M$  would not preserve truth.
- Not every statement is true.
- $\phi \supset \psi; \phi \models \psi$

In addition, it would seem that even the Quinean has to accept that some beliefs, certain logical beliefs, are immune to revision, although I have not explored what those principles would be. I take this all to be evidence for a phenomenon which I have called a “logocentric predicament”.

One might think that an equally compelling phenomenon arises from discussions about the justification of deduction. E.g., Haack has attacked the idea that there can be any justification of deduction, against Dummett’s contention that there is a sense in which deduction can be justified. Haack argues: How might we justify deduction? Either inductively or deductively. Inductive justification would be too weak, as it wouldn’t be able to assure us of the *necessarily* truth-preserving nature of a rule of deduction.<sup>26</sup> But deductive justification would be circular. Therefore, deduction has no justification (see Haack (1976)). She also offers a more complex argument, claiming that if certain rule-circular justifications of kosher principles such as *modus ponens* are to be allowed, so must the same kinds of rule-circular arguments which serve to justify *bad* principles, such as *modus morons*.<sup>27</sup> In contrast, Dummett offers his distinction between suasive and explanatory arguments (see section 3.4.4, p. 104). Whilst it does seem illegitimate to use a rule in an argument which is intended to persuade someone that the rule is valid, nevertheless, Dummett claims that there is no problem for using a rule in an argument which is intended to explain why the rule is valid to someone who already accepts its validity (see Dummett (1973, 1978)).

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<sup>26</sup>One might argue that cases of the necessary *a posteriori* show that inductively-acquired knowledge can indeed provide knowledge of necessity. I will ignore this complication for now. In any case, I take it that the laws of logic are standardly taken, even by Kripkeans, to be necessary *a priori*.

<sup>27</sup>

$$\frac{A \supset B, B}{A}$$

Even if an explanatory argument for the justification of deduction is acceptable, the question remains: why are suasive arguments for the justification of deduction so bad? Yes, they are circular in some unacceptable way. But what is it about deduction that appears to rule out the kind of suasive justificatory argument that it is possible to give in so many other circumstances? One might take these considerations to highlight another logocentric predicament: one of *justification*, rather than doubt and rejection.

Not everyone will be moved by this. One might just reject the idea that we require anything like justification of deductive principles. Like Dummett, one might argue that only explanation is appropriate here, and that we should not panic if no (suasive) justification is available. One might then reject the idea that there is any “predicament” here to cause us worry. Surely we are only in this predicament if we need justification and cannot get it: but, arguably, we do not need it.

Even taking this more relaxed attitude to the justification of deduction, I think there is still a peculiarity of logic which is highlighted. Depending upon one’s particular views, this peculiarity is that *there cannot be* any justification of deductive principles, or equally peculiar, that *we are absolved of needing* any justification of deductive principles. If one finds this worthy of consideration and explanation, then it can be incorporated into the discussion of doubt and rejection of logic as a phenomenon arising from a deeper predicament. I have argued that there are certain principles which thinkers like us are not able to properly question, doubt or reject. If we cannot even coherently raise doubts about the validity of certain principles, how can the task of (suasive) justification of those principles even get going? So the rational indubitability of logical principles may be able to account for our inability to properly give a justification of them. And the fact that we cannot give a justification of those principles is less worrying, given that we can hardly reject them as a consequence.

It is not uninteresting that logical principles have this strange hold on how we may think. Such a phenomenon invites consideration and explanation. Why do logical principles, and seemingly no other kinds of principle, have such a hold on us? The rest of this chapter will be devoted to considering how to provide an explanation. I will first consider some explanations which I take to be inadequate. I will then propose my own explanation.

### 3.5.2 Alternative Explanations

First, McFarlane’s interpretation of Frege on logical laws. Consider cases of laws less general than logical laws, such as the laws of physics. The laws of physics describe regularities of the physical world: they are true general statements about physical objects, properties and processes. Arising from these are norms or standards for counting as thinking about physical objects. Suppose I believe that the force exerted on an object is equal to its mass plus

its acceleration. In order for my belief to really be about physical objects, it must be appropriate to evaluate it as *wrong*, given the laws of physics. It may well be that my belief is neither right nor wrong in light of the laws of physics, because I am thinking about some other kind of thing, say, alien schmysical objects in a parallel universe.<sup>28</sup>

Insofar as one's activity is to count as making judgments about the physical world at all, it must be assessable for correctness in light of the laws of physics. In this sense, the laws of physics provide *constitutive norms* for the activity of thinking about the physical world. (MacFarlane, 2002, p. 36–7)

At some point, there will be completely general standards for thought, where one considers thought about any subject matter whatsoever, not restricted to a particular domain such as *physical objects*. Frege took the laws of logic to be the most general truths there are, about absolutely everything. If the laws of logic are general truths about everything, then, following the same line of thought as above, if I want to count as thinking about anything, what I am doing must count as right or wrong in light of those laws. But this time, there is no alternative realm I might be thinking of (as with the alien universe). If I am not thinking about something out of everything, there is nothing left for my thought to be about.

While physical laws provide constitutive norms for thought *about the physical world*, logical laws provide constitutive norms for thought *as such*. (MacFarlane, 2002, p. 37)

In order to count as thinking *at all*, what I am doing must count as right or wrong in light of the most general laws which cover every possible domain of thought. If one's activity is not evaluable in light of these norms, then it cannot be about anything, hence one must be doing something other than thinking.

I am sympathetic to the view that laws of logic are constitutive norms for thought, but I think a different rationale to that offered by (MacFarlane's) Frege is to be preferred. A substantial worry about this strategy is that it does not seem able to isolate the laws of logic as those laws which are binding for thought, as opposed to other kinds of laws which are also

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<sup>28</sup>This kind of view does not require that one know what the laws of physics actually are. It would be inconsistent for me to believe that  $L$  is a law of physics, and also to believe something about the behaviour of a physical object which contradicts  $L$ . But this would be straight logical inconsistency. The point is that, in believing something about a physical object which goes against what the laws of physics actually are, I should count as doing something wrong, whether I know it or not, if what I am doing is to count objectively as *thought about physical objects*. If what I am doing isn't counted as (right or) wrong, then I am doing something else, e.g. thinking about alien objects.

about “everything”.<sup>29</sup> First, in what sense are the laws of logic about “everything”? It is perhaps helpful to start with the generality of the laws of arithmetic.

Here, we have only to try denying any one of them, and complete confusion ensues. Even to think at all seems no longer possible. The basis of arithmetic lies deeper, it seems than that of any of the empirical sciences, and even than that of geometry. The truths of arithmetic govern all that is numerable. This is the widest domain of all; for to it belongs not only the actual, not only the intuitable, but everything thinkable. Should not the laws of number, then, be connected very intimately with the laws of thought? (Frege, 1884, § 14)

The laws of arithmetic govern, according to Frege, all that is thinkable. Do the laws of arithmetic quantify over everything? Presumably not. We normally think of laws of arithmetic as quantifying over *numbers*, e.g.

$$\forall n \forall m (n + m) = (m + n)$$

Even if we don’t express laws of arithmetic using quantifiers, but schematized sentences or suchlike, e.g.,

$$(a + b) = (b + a)$$

it is still understood that the letters are place-holders for numerals (i.e. number-terms).

If the laws of arithmetic quantify over or contain places for *numbers*, and govern the behaviour of numbers and arithmetical functions, in what sense can they be said to govern *everything thinkable*? In the following sense: everything which falls under a (non-vague) concept is numerable or countable.

The only barrier to countability is to be found in the perfection of concepts. Bald people for example cannot be counted as long as the concept of baldness is not defined so precisely that for any individual there can be no doubt whether it falls under it or not. Thus the domain of the countable is as wide as the domain of conceptual thought. (Frege, 1980, p. 100)<sup>30</sup>

(Frege ultimately argues that vague predicates do not correspond to any concept, so the restriction to falling under a non-vague concept is really

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<sup>29</sup>To put forward a careful interpretation of Frege here would be too great a task for present purposes. If what I write is not a faithful rendering of what Frege intended, at least it is a *Fregean* view under consideration. See MacFarlane (2002) and Textor (2010) for more detailed interpretations.

<sup>30</sup>As cited in Textor (2010, p. 16).



no restriction at all.) We can only think about things which fall under concepts,<sup>31</sup> so everything which we can think about is countable.

By ‘countable’ Frege cannot mean that everything can be mapped one-one to the natural numbers, because that is arguably false. E.g., not every point on a line can be counted in this way, let alone everything there is. Rather, we must take him to mean that each thing is such that it can be counted—every point on the line is such that we could count it along with some others—and not that once we “finish” counting everything we will have no more than  $\omega$  things. In other words, everything is such that we can start counting including it, although we may never finish counting. Numbers apply to everything. So the laws of arithmetic, in governing numbers, also govern everything which is countable, which is *everything*.<sup>32</sup> One might worry that this overlooks non-sortal concepts such as “red”. However, Frege writes

The concept “syllables in the word three” picks out the word as a whole, and as indivisible in the sense that no part of it falls any longer under that same concept. Not all concepts possess this quality. We can, for example, divide up something falling under the concept “red” into parts in a variety of ways, without the parts thereby ceasing to fall under the same concept “red”. To a concept of this kind *no finite number* will belong. (Frege, 1884, §54, my emphasis)

There may be uncountably many, as in *cannot be mapped one-one to the natural numbers*, entities which fall under a concept such as “red”, but this does not harm Frege’s point. Such concepts may still have a number, but an infinite number. The alternative understanding here of “countable” stands.

One can understand Fregean generality of the laws of logic in a similar way. A law such as

$$\forall p \forall q (p \supset (q \supset p))$$

ostensibly quantifies over *propositions*. A schematic presentation of the law,

$$A \supset (B \supset A)$$

contains letters which act as place-holders for sentences or propositions. So, aren’t the laws of logic a specialized science about propositions or sentences? No. Propositions (sentences) can be about anything, in the same way that numbers can count anything. So the laws of logic govern everything thinkable, in virtue of governing propositions which can be about anything thinkable.

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<sup>31</sup>The simplest explanation of this is that everything falls under a concept, understood in the Fregean sense, i.e. something like a property: to think otherwise would be to commit oneself to the existence of bare particulars.

<sup>32</sup>See Textor (2010, p. 17).

A Fregean explanation of the logocentric predicament may run as follows. Thought aims at the truth. So there is a prescription to think in accordance with the truth as far as possible. If you want to think about physical objects, you should aim to think in accordance with the general truths about physical objects (laws of physics). If you want to think about anything at all, you should aim to think in accordance with the most general truths about absolutely everything (laws of logic). This explains why logic is so binding for our thought: the aim of thought is truth, and the laws of logic are truths about *everything*, so thought about *anything* will aim to be in accordance with those laws.

My worry is that there are other laws (general truths) which are “about everything” which are *not* rationally indubitable, or immune to rational rejection, or otherwise binding on our thought. If this explanation works for logical laws, then any other laws which constitute general truths about everything should also be rationally indubitable, and yet they are not. One can already see that the laws of arithmetic, on this view, should be binding for thought in this way. Are they? A Fregean would say yes. Kant has argued that mathematics is not analytic, such that one can coherently doubt whether  $7 + 5 = 12$  even if one perfectly well understands the constituent numbers and functions. I do not want to engage in this debate here. But already this explanatory strategy appears to commit one to the rational indubitability of arithmetical truths, where one may prefer to leave this matter open.

More worrying is the possibility of general truths which directly quantify over everything (i.e. they are not about everything in virtue of an intermediary such as numbers or propositions), or which are “about everything” directly. E.g., Frege may have endorsed something like the following statement:

Everything is either an object or a function.

There are other general statements that some philosophers have endorsed.

Everything is a property or some properties. (Bundle Theory)

Everything is a thinking substance. (Spinoza?)

Everything is perceptible. (Berkeley?)

Everything is an object. (Property Nominalism)

Everything is a part of a whole. (Unconstrained Mereology)

Surely these are intended to be about all things? The bundle theorist doesn't allow for there being *some* bits and pieces which are genuine substances. The suggestion is that many general statements in metaphysics are claimed to be truths governing everything. Moreover, they are more obviously about everything than the laws of logic and arithmetic, given that they quantify directly over all things, not over an intermediary which in turn applies to

all things. But, and here is the rub, surely we do not want to claim that metaphysical truths are immune from rational doubt or rational rejection. The very bread and butter of a discipline such as metaphysics is to continually question these kinds of statements, to consider them, to offer arguments and justifications in favour of (or against) them.

Note also, any truth can be manipulated into a general truth which quantifies over all things. E.g., everything is such that, if it is a glass of water, then it is a glass of  $H_2O$ . Or, everything is such that, if it is a plate of chips, then there is a high probability that I will desire to eat it. There is a sense in which these statements are about everything, but I hope it is obvious that they are not rationally indubitable.

Recall, the brief was to provide an explanation of a particular phenomenon, namely, the rational indubitability of some logical principles. In offering the above explanation, one not only accounts for the logical laws, but one gets any general truths about everything for free, be they laws of arithmetic, or metaphysical truths, and so on. The explanation fails in overstepping the brief, and ushering in new commitments to the rational indubitability of principles that we would rather keep open to debate.

Another alternative explanation of the predicament might run as follows. Isn't it because we want our thought to accord with how things are absolutely necessarily? If thought aims at truth, then thought will aim at being correct about how things are. In particular, thought will always count as correct or incorrect according to how things are absolutely necessarily. Supposing, e.g., that things are absolutely necessarily such that not everything is true, then whatever the circumstances, one will count as thinking correctly if one believes, or believes consistently with, the proposition that not everything is true. Perhaps this explains why thinkers are always evaluable in light of certain principles—because thought aims at truth, and the relevant principles are always true, no matter what. However, this fails as an adequate explanation of the predicament, of why rational rejection of or doubt about these principles is ruled out. An attempt to raise doubts concerning, e.g., *modus ponens* does not break down simply because it is always valid no matter what (or because a propositional rendering of it is always true), rather, it is because it is an integral part of the very apparatus we use to raise doubts about logical principles. Simply being true or valid no matter what doesn't seem to imply that a proposition or rule is part of this minimal logical apparatus (although an implication may turn out to run in the other direction).

One can raise a similar objection here to that directed towards the Fregean view: it explains too much. An essentialist form of this explanation will take metaphysical necessity to be (richly) absolute necessity (see section 3.2.2). The problem is that there is even less chance of explaining the logocentric predicament in terms of trying to accord with how things are absolutely (metaphysically) necessarily, than there is in terms of trying to

accord with how things are absolutely (logically) necessarily. The proposal is to explain why the laws of logic are unconditionally binding for thought in terms of thought aiming to be in accord with how things are absolutely necessarily. This might have some sway when how things are absolutely necessarily covers ground which is intuitively logically necessary. However, it has no sway when we include (purported) metaphysical necessities, such as that Socrates is a human, and not a boiled egg; or that Elizabeth II has George VI for a father; or that water is H<sub>2</sub>O. There is no comparable “predicament” which we get into when attempting to doubt the veracity of these statements. Whether or not one agrees with Kripke’s arguments in *Naming and Necessity*,<sup>33</sup> he is not usually accused of tying himself in knots, or attempting to justify something which is fundamentally built into the apparatus of justification such that it makes no sense to attempt to justify it. It makes perfect sense to give reasons, and to give arguments for and against the truth of purported statements of metaphysical necessities. So one cannot claim both that metaphysical necessity is absolute, and that the logocentric predicament can be explained in terms of striving to think in accordance with how things are absolutely necessarily.

### 3.5.3 Constitutive Norms for Thought

I argued above that we cannot understand the laws of logic as being literally constitutive of thought, in the sense that it would be impossible to think illogically, because we plainly *do* think illogically on frequent occasions. But simply saying that the laws of logic are normative for thought is not *prima facie* strong enough to (a) provide for an account of laws of logic as being laws of thought, or (b) account for the logocentric predicament. Questions that emerge out of the foregoing discussion are: *why* and *how* is our thought bound in such a way? One answer is to say that these laws are constitutive of thought, not in terms of being followed to the letter, but in terms of being a standard of evaluation. That’s just what thought *is*: a mental activity which is subject to rules of a peculiar kind. There are some normative laws, evaluability in light of which is constitutive of thought. These are the “laws of thought”. And the kind of principles that arise from considering the predicament of being unable to step away from these norms look to be familiar and basic logical principles. So we can take the laws of logic (or at least the most basic laws of logic) to be the laws of thought: constitutive norms for thought as such.

My argument for taking the laws of logic to be constitutive-normative laws of thought is an argument to the best explanation. If we accept that we are in a logocentric predicament, this means that it is impossible for us to step out of our thought being evaluable in light of logical principles. A

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<sup>33</sup>Kripke (1980)

good explanation of this is that for one's mental activity to be thinking *just is* for it to be evaluable in light of certain norms. One can draw a contrast with other mental activities and states which do not appear to be subject to the same kinds of norms. E.g., we do not demand logical coherence from our dreams, but *dreaming* is arguably some kind of mental activity.

One might still try to ask the following question: *why* are the laws of logic unconditionally and intrinsically binding for human thought and reasoning? This is what the Fregean explanation attempted: to provide a deeper explanation of why the laws of logic are constitutive norms of thought in terms of their being general truths and thought aiming at the truth. But such an explanation allowed for too much. Is it enough to say that this is just what the laws of logic are? Or does one require an explanation of why this further fact is so? I am happy to let the buck stop here. The laws of logic are constitutive norms for thought because that's what thinking is, to be evaluable in light of logical principles. If someone can offer a deeper explanation for this connection between thought and logical laws, which does not threaten the compatibility of the view with RM, then that would be nice, if not strictly necessary. Even so, I will briefly sketch two potential avenues for such an explanation.

One option for further explanation would be to expand upon the role of the meaning of the logical constants as described in section 3.4.4. Suppose our understanding of the logical constants consists at least in part in acceptance of certain rules of inference concerning those constants. Suppose also that these logical constants, and our ability to understand and use them, are a constitutive part of our ability to engage in certain activities such as reasoning from suppositions. Then, it seems that our understanding of the logical constants is required for us to be able to do this kind of thing, i.e. do some reasoning. Given this account of what this understanding consists in, this means that our ability to engage in the relevant activities depends upon our acceptance of the relevant principles. So, we cannot rationally reject these principles because to do so would be to lose the ability to engage in rational argument at all.

A potentially problematic detail of this kind of further explanation concerns the *meaning* of the logical constants. Suppose one takes their meaning to be determined by a referent, e.g. the meaning of the word 'and' is determined by the behaviour of the logical function *conjunction* to which the word refers (in English). The account would therefore bottom out in the behaviour of logical entities, which I have tried to avoid. The explanation of the logocentric predicament is no longer that the laws of logic are constitutive norms for thought. Rather, the laws of logic would concern the behaviour of these logical entities, and the logocentric predicament would be explained by our need to employ certain concepts, and those concepts being intimately connected to these logical entities. Then again, an advocate of a laws-of-thought account of logic is unlikely to also believe in the existence of logical

entities such as *conjunction*. These two views together would threaten to overdetermine logic—logic is both a matter of laws of thought and the nature and behaviour of logical entities. I shall leave deeper assessment of this option for elsewhere.

A more general answer plays on the idea that thought is a normative phenomenon. Take the example of representational thought, e.g. thinking that *a* is *F*. It makes sense to describe how this representation succeeds in being “about” *a* in terms of norms and correctness: if the thought isn’t correct or incorrect depending upon how things are with *a*, then it doesn’t make sense to think of it as being about *a*. Through Kant’s work he makes an implicit distinction between *mere thought* and *cognition*. Very briefly, cognitions are objective representations which succeed in being about the world (through adhering to certain constraints on possible experience). By contrast, mere thoughts do not achieve objectivity: they are not properly about the world. E.g., according to Kant, the thought that *there is a vacuum* contains a concept, the concept of a vacuum, which, although non-contradictory, could have no instance in the empirical world, so the thought falls short of objectivity.

To *cognize* an object I must be able to prove its possibility, either from its actuality as attested by experience, or *a priori* by means of reason. But I can *think* whatever I please, provided only that I do not contradict myself, that is, provided my concept is a possible thought. This suffices for the possibility of the concept, even though I may not be able to answer for there being, in the sum of all possibilities, an object corresponding to it. But something more is required before I can ascribe to such a concept objective validity, that is, real possibility; the former possibility is merely logical. (Kant, 1781, 1787, Bxxvi, footnote)

My suggestion is this. In the case of mere thought, we cannot make sense of it as being a normative phenomenon in terms of norms arising from how things are with what is represented, because mere thoughts do not succeed in representing any object. We are left only with bare norms for how thoughts should be put together and related to one another, i.e. logical principles. This line of thought needs to be explored more thoroughly elsewhere. However, the suggestion to be kept in mind is that, allowing for thoughts which fall short of representing the objective world, and taking a general view of thought as a normative phenomenon, may give us the tools to give a more satisfying account of why logical laws are constitutive norms for thought.

### 3.5.4 Necessity, Truth and Opting Out

The alternative explanations, in terms of Frege on laws of truth, and how things are absolutely necessarily, hint towards a significant challenge for the

proposed view that logical necessity has its source in laws of logic understood as constitutive-normative laws of thought. Logical necessity is typically taken to imply *truth*, i.e.

$$\Box p \rightarrow p$$

This is the T-axiom familiar from modal logic. One would expect any account of the source of logical necessity to be able to accommodate the validity of this principle (or to have a very good reason why it should be rejected).

The alternative views look like they will be able to easily accommodate the T-axiom. Consider Frege's laws of truth: above all, these are themselves *truths*. *How things are absolutely necessarily*, is also understood to be *how things are*. An essentialist account of logical necessity in terms of the essences of logical objects also appears to include the truth of logical necessities. Being *essentially* thus-and-so is simply a way of being thus-and-so.<sup>34</sup> E.g., if it is necessary that *conjunction* can join two true propositions into one, then this necessity purportedly has its source in *conjunction* essentially being able to join two true propositions. But if *conjunction* is essentially able to join two true propositions, it follows that *conjunction* is able to join two true propositions. So if necessarily, *conjunction* is able to join two true propositions, then *conjunction* is able to join two true propositions. Truth has been implied by necessity.

By contrast, it is not clear how the proposed view, that laws of logic are constitutive-normative laws of thought, can accommodate an implication from logical necessity to truth. Just because a principle is an inescapable standard of correctness for our thought, this does not immediately imply anything about *truth*. But it seems that giving up the implication of truth by logical necessity would be too bitter a pill to swallow.

It is worth emphasising how this issue and the logocentric predicament pull in two directions. On the one hand, we want to explain why logical laws are so intimately bound up with thought and our practices of reasoning and justification. On the other hand, we want to maintain that basic principles and statements arising from logic are, above all, *true*. A view which takes laws of logic to be (constitutive-normative) laws of thought has a ready answer to the first question, but has no immediate answer to the second. Likewise, a view which takes laws of logic to be connected to something external to thought may have it easier with the second question, but will struggle with the first.

In particular, an essentialist account of logic and logical necessity, whereby logical necessity has its source in the natures of logical objects, may easily be able to account for logical *truth*, but it remains unclear how the essential properties of a specific class of objects should have such a profound and binding influence on human thought. The essentialist may reply that thought aims at the truth, and so thought ought to conform itself to logical

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<sup>34</sup>Whereas, e.g., being a toy *X* does not imply being an *X*.

laws, as violating them is likely to lead one away from the truth. However, this doesn't explain why conformity to the principles arising from the nature of *logical* entities is binding in a way that the principles arising from the nature of other kinds of things is not. Take the class of all trees. If thought aims at the truth, then thought ought to conform itself to the necessities arising from the nature of all trees, because to violate these necessities would lead one away from the truth. But necessary truths about trees are not rationally indubitable. Perhaps it is part of the nature of a tree that it is not sentient, but we can perfectly well enjoy and understand stories involving talking, thinking trees. No other kinds of objects have this effect on our thought (except perhaps mathematical objects) so why should logical objects be any different? One familiar quibble with essentialist views concerns how we might be said to have any epistemic access to the relevant essential natures of things in order to have any knowledge of logic at all. The challenge of the logocentric predicament is similar to this, but stronger. Not only does the essentialist need to explain how we can have any knowledge of the essential properties of logical objects, but he needs to explain how the essential properties of logical objects provide an inescapable standard of correctness for thought, and why the essential properties of *these* objects, as opposed to other kinds of object, have such an effect.

The essentialist might argue that a proper account of logical necessity is to be given in terms of the natures of logical *concepts*, à la Fine.

The conceptual necessities can be taken to be the propositions which are true in virtue of the nature of all concepts; the logical necessities can be taken to be the propositions which are true in virtue of the nature of all logical concepts. (Fine, 1994, pp. 9–10)

It seems far less mysterious how logic is binding and epistemically accessible if we put things in terms of concepts. After all, we use concepts to think. This is one way for the essentialist to go, but the view looks more like a redescription of the proposed view in essentialist language, rather than a genuine alternative. The most basic laws of thought might be understood to include rules for relating propositions to each other, and also rules for use and application of concepts. Someone already working in an essentialist framework might describe this in terms of laws or rules arising from the essences of the concepts, especially the logical concepts. Someone with a different theoretical background might simply take these rules as the building-blocks of thought themselves, without going on to reify these rules as entities—*concepts*—which have essences. The resulting views are of course different, with different commitments, but to choose between them it looks like one will need reasons for choosing between the overall approaches. E.g., one might favour the essentialist view because one already has reasons



for believing that certain entities have essential natures, and that concepts are the right kind of thing to have such a nature.

There seems to be a tension between the logocentric predicament and necessity implying truth. Tie logical necessity too close to thought, and it looks to be too far from mind-independent truth; tie logical necessity too close to truth and mind-independent reality, and it remains obscure how it can be binding on thought. This tension needs to be addressed by any view of logical necessity.

A related worry has been introduced for a certain kind of account of moral normativity. In brief, two issues are under consideration: (a) to what moral standards are we subject, and (b) what makes moral standards binding for us, why *ought we* to conform? The hope is that a constitutive theory can give us the answers. The idea is that the moral standard that one ought to  $\phi$  is binding for an agent because that one ought to  $\phi$  arises out of constitutive features of what it is to be an agent, or because  $\phi$ -ing is constitutive of being an agent. Issue (a) can be addressed by learning more about what is constitutive of agency, and issue (b) can be addressed by noting the constitutive tie. The moral norms that bind us do so because they are part of *what it is* to be an agent.<sup>35</sup>

The intuitive idea can be put, I think, rather simply: In order to know what it takes for a car to be a good car, we need to understand what cars are, what their constitutive functions are, and so on. A good car is just a car that is good *as a car*, good, that is, in measuring up to the standards a commitment to which is built into the very classification of an object as a car. Analogously, then, perhaps in order to know which actions are good (or right, or reason supported, or rational, or whatever), all we need is a better understanding of what actions are, or perhaps of what it is to be an agent, someone who performs actions. Perhaps the normative standards relevant for actions will fall out of an understanding of what is constitutive of action just as the normative standards relevant for cars fall out of an understanding of what is constitutive of cars. (Enoch, 2006, p. 170)

The analogy with my proposed view of logical laws is striking. My question (b) is: why are logical laws binding for our thought? The proposed answer is: because that we ought to think that way is part of *what it is* to think. My question (a) is: what are the most fundamental laws of logic? The proposed answer is: those which we cannot rationally doubt, due to their being in some sense constitutive of thought.

So what is the problem with this kind of view? At the heart of the moral view is the idea that we want to explain why it is *good* to do some

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<sup>35</sup>Examples of constitutive views include Korsgaard (1996, 2009); Rosati (2003).

things, such that we ought to do them, and such that it is not an arbitrary matter which things we ought to do. However, just because we find out that performing some actions is in some sense constitutive of being an agent, why does this take away the worry? Why shouldn't we simply then worry that the constitution of our agency is just as arbitrary as our non-essential desires and actions?

Why does it matter, as far as the question of normative arbitrariness is concerned, that some parts of [an autonomous agent's] psychology have this necessary-for-agency status? Why shouldn't our agent treat the motives and capacities constitutive of agency as normatively arbitrary? Why shouldn't she treat the very fact that they are constitutive of agency as normatively arbitrary? . . . What is it to her, so to speak, if some of her motives and capacities enjoy such a status? (Enoch, 2006, p. 178)

A variant of the challenge is to ask: if this is what is constitutive of agency, why should one be an agent? In response to Korsgaard's view where self-constitution is constitutive of agency, Enoch asks why the "agent" cannot simply respond:

"... Perhaps I cannot be classified as an agent without aiming to constitute myself. But why should I be an agent? Perhaps I can't act without aiming at self-constitution, but why should I act? If your reasoning works, this just shows that I don't care about agency and action. I am perfectly happy being a shmagent—a nonagent who is very similar to agents but who lacks the aim (constitutive of agency but not of shmagency) of self-constitution. I am perfectly happy performing shmactions—nonaction events that are very similar to actions but that lack the aim (constitutive of actions but not of shmactions) of self-constitution." (Enoch, 2006, p. 179)

Not only do these views appear to fail in rendering moral norms non-arbitrary, but it seems that we are now able to opt out of the norms simply by saying we are not agents, but rather something similar which lacks the relevant constitutive nature.

The threat to my proposed view is likewise twofold. First, just as we want our moral norms to guide us to the good, so we want our logical laws to guide us to the truth.<sup>36</sup> However, just as being constitutive of agency doesn't adequately explain how moral norms can be non-arbitrary and aim at the good, so being constitutive of thinking does not adequately explain how normative logical laws can be non-arbitrary and aim at the truth. Not only is there the simple problem sketched above that if we understand logical

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<sup>36</sup>We want them to be true and/or truth-preserving.

laws in a *normative* way we cannot expect the resulting logical necessities to imply truth, but there is also the worry that the *constitutive* element of the view is equally undermining. Second, just as we require a reason to be an agent rather than a schmagent, so it seems we need to explain why we should be thinkers—subject to evaluation in light of the laws of logic—rather than schminkers, non-thinkers who are similar to thinkers but lack the constitutive feature of being evaluable in light of logical laws.

These are deep problems spanning across a wide range of debates, so I do not expect to be able to solve everything quickly here. But I will sketch what I take to be a promising line of defence. First, how should we address the charge that we can opt out of being thinkers? What reason have we to be thinkers rather than schminkers? There are two issues here: (1) is it genuinely possible for us to opt out of thinking in this way, and (2) if so, what reason do we have for not thus opting out?<sup>37</sup>

So, can we opt to be schminkers rather than thinkers? A simple answer is to point back to the arguments for there being rationally indubitable logical principles in section 3.4. Surely, if these arguments are successful in showing anything, they show that we are unable to shed these principles as standards for any rational mental activity in which we engage. So, it looks like we *can't* in fact choose to be schminkers, understood as non-thinkers who are very similar to thinkers except for not being evaluable in light of logical laws. Even so, this assumes that we have a reason to engage in *rational* mental activity: I have not been concerned with the kind of doubt which refuses to “see reason”, which is just stubborn foot-stamping.

I think we cannot give up evaluability in light of logical laws, and hence choose schminking over thinking, on pain of losing out on too much. Under such conditions, schminking would hardly be similar to thinking insofar as it would be radically irrational. This is brought out in Hanna’s response to a radical rejection of logic, which he calls “white-queenism”.

By the notion of white-queenism, then, I mean the radical skeptical attempt sincerely and self-consciously to reject logic *completely*. I will consider two versions of white-queenism: (1) classical or Cartesian white-queenism, and (2) postmodern or Nietzschean white-queenism. (Hanna, 2006, p. 224)

Cartesian white-queenism is connected to *doubt* about logical principles and truths.

The Cartesian skeptic I have in mind is one who goes slightly beyond Descartes’s own application of his skeptical method and

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<sup>37</sup>Enoch points out that needing a reason to be an agent, rather than a schmagent, undermines a naturalist project of reducing *norms* for action down to constitutive facts about agents. My project does not include such a reductive claim—it bottoms out in a certain kind of norm for thought—so I am not going to address this worry for the naturalist.

proposes explicitly to doubt every logical truth, law, deduction, notion, and principle whatsoever: a skeptic, in short, who proposes explicitly to doubt whatever logical apparatus is presupposed by and implemented in any and every argument or belief, including the *cogito*. (Hanna, 2006, p. 225)

This kind of white-queenism is quickly despatched, given that its proponents rely on an underlying logic.

Any explicit doubt about logic already presupposes and uses *the skeptic's own logic of thought*, at the very least. But every logic of thought is a logical system of some sort. Therefore all ultra-Cartesian or Peircean doubts about logic are self-refuting. The logocentric predicament strikes again. (Hanna, 2006, p. 226)

This kind of skeptical doubt perhaps invites justification of logical principles in response, but we saw above how this kind of doubt and hence any justification is inappropriate. One can therefore also dismiss this kind of skepticism as not fully rejecting logic.

More interesting is the second kind of white-queenism. Hanna likens the view to Nietzschean skepticism about morality. This skeptic does not simply claim that things we thought were good are in fact evil, or that evil things are in fact good. Rather, this skeptic opts out of morality altogether: there is no good and evil. (Note the similarity here to opting out of being an agent altogether.)

The Carnapian-Nietzschean or neo-Nietzschean skeptic becomes a logic skeptic not by explicitly doubting logic, but instead by simply *opting out* of the social construct that constitutes the will to truth: that is, by deciding to liberate herself from logic, and by undertaking to live a form of human life that expresses a total lack of concern for logic. (Hanna, 2006, p. 227)

I have argued that being subject to some logical principles is inescapable for human thought, but these arguments all used reasoning in some way or another. Why couldn't we just side-step the issue completely? Rather than arguing one way or the other about whether certain logical principles are rationally indubitable or similar, one might set it all to one side and determine to go on subject to evaluation by no logical principles whatsoever.

Hanna's response is to try to imagine "a community of fully logic-liberated people". His conclusion is that, even if this rejection of logic is possible, it would result in giving up the ability to have beliefs, to give reasons for action, to act on desires and so on. Humans would act blindly and have unreflective mental attitudes, with no systematic connection between actions and mental attitudes, and between different attitudes.

Inconsistency and fallacy would be endemic, entrenched among them. Neither truth nor truthfulness would mean anything to them, or untruth or untruthfulness for that matter. They could not have beliefs, but instead only unreflective attitudes. They could not give reasons for anything, hence could not justify anything, hence would be without cognitive or practical norms of any kind. Without cognitive or practical norms, their emotional and volitional states would be without internal constraint or structure and utterly wanton, without any reasons for caring one way or the other about their direct or “first-order” desires or preferences. (2006, p. 229)

This seems right. Judgment, inference, reasoning, giving reasons for beliefs and actions, acting on the basis of beliefs and desires, an interest in truth, and much more besides requires some logical standards of correctness. Perhaps one can indeed reject logic wholesale, but all the rest would go with it. So far I have been understanding thought as simply as possible, with the most basic kind of thought being just entertaining a proposition. Perhaps, even if judgment, inference, reasoning and reasons were abandoned, we could still do this. However, it can be argued that the ability even to entertain a proposition involves these kinds of abilities. Different broad lines of thought might be used to come to this conclusion. Some thinkers have argued that grasp of concepts and the propositions they go to form requires some inferential abilities. E.g., Baldwin (2002) and Brandom (1998, 2008) offer arguments for the view that concept acquisition and deployment involves inferential and modalizing abilities. Alternatively, one might hold a Davidsonian theory of meaning in terms of the truth-conditions of sentences. A community which rejected any interest in a notion of truth would be unable to understand propositions the meaning of which was constituted by the conditions under which they are true. Even a use-theory of meaning brings in the notion of correct and incorrect use of expressions. So the logical nihilist would be taken to be rejecting even the most minimal level of thought—entertaining of a propositional content—from many established philosophical standpoints.

I think this line of thought goes a long way to showing that we should be thinkers, not schminkers: we shouldn't give up logical laws, and mental activity evaluable in light of those laws is thinking, not schminking. However, the non-arbitrariness problem remains: even if we can't opt out of thinking, how can we be assured that the logical principles evaluability in light of which is constitutive of thinking will lead us to the truth?

One might attempt to tell a story about the evolution of our reasoning practices. The idea here would be to point out that, as any other kind of animal, the particular skills of human beings (and like-minded creatures) must have evolved. That would mean that they must be useful for survival

in some way. When it comes to propositions that we can't help but presuppose, one might presume that these presuppositions would only survive if they were true. Otherwise, inevitably creatures would run up against difficulties when they are proven to be false. The creatures with the true presuppositions might be expected to do better overall. That said, it might be sufficient for survival if the presuppositions are almost always true. E.g., if there were only a very few cases of *modus ponens* failing, but in the large it gives creatures an advantage, then it might still be selected for.

A natural move to make, given the Kantian background of this view of logic, is the move from acknowledging that we can't help but experience the world a certain way, to concluding that those features are thereby genuine features of the world we experience (see sections 4.1 and 5.2). Kant drew a distinction between real and logical modality (see section 4.4). In order for a thought to have "objective validity"—to count as saying something true or false about the world—it must conform to conditions on possible experience, it must at least be really possible. A proposition might be perfectly well thinkable, and hence logically possible, but it may nevertheless fail to be really possible, in which case it will lack objective validity, and will not be rightly evaluable for truth. This view is explored in more detail in sections 4.4 and 5.2.3. However, the point to be highlighted here is that the conditions on possible experience, with which a thought must be compatible in order to be objectively valid, are taken to correspond to genuine features in the world, and hence to correspond to truths. E.g., if a condition of possible experience is that every object be spatiotemporal, then it is thereby *true* that every object is spatiotemporal. What it is important to note here is that these conditions on possible experience provide *additional* constraints to those on being a *bona fide* thought in the first place. As well as meeting certain *logical* criteria, which make a thought logically possible, it must meet additional criteria to count as objectively valid. Now, these logical criteria, in being part of conditions on having an objectively valid thought, in virtue of being part of conditions on having a thought at all, will be subject to the same move. It looks like we can be assured that those logical principles, evaluability in light of which is constitutive of thought, will thereby be genuine features of the world, and therefore *true*.<sup>38</sup>

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<sup>38</sup>If successful, this strategy will ensure that logical necessity implies truth, without allowing mere logical possibility to have any "metaphysical significance": objectively valid thoughts must conform to logical principles as well as conditions on possible experience, but conformity to logic alone is insufficient for a thought to have an object in the world. See section 5.2.3.

### 3.5.5 Different Logics

There are many well-established logical systems which differ on key principles and definitions, and on what counts as a deductively valid argument.<sup>39</sup> I have argued that logical necessity is the kind of necessity attaching to a deductively valid inference, and that the source of logical necessity is to be found in an account of logic, for which the notion of a deductively valid argument is a, perhaps *the*, key component. The account of logic, in turn, is premised on the view that some logical principles are immune to rational doubt or rejection. However, an obvious challenge here is to point out that there are many different logics on the market, all seemingly legitimate, which agree on hardly any logical principles at all. Doesn't the conclusion that some basic laws of logic are rationally indubitable fly in the face of actual logical practice?

Furthermore, I have argued that the best explanation of this phenomenon is that the laws of logic are constitutive-normative laws of thought: evaluability in light of these basic logical laws is just what it is to think. But this threatens to clash with the multiplicity of logics. Do intuitionist and classical logicians have fundamentally different laws of thought, such that the intuitionist is thinking<sub>I</sub> when the classicist is thinking<sub>C</sub>? If Graham Priest converts me to think that dialethic logic is the One True Logic, do I *change* the constitutive-normative laws of my thought, and hence engage in a different kind of mental activity, say thought<sub>D</sub>, to what I was doing before? Presumably not. In which case, a story needs to be told about how an account of logic in terms of constitutive-normative laws of thought can accommodate the apparent plurality of different logics.

Hanna (2006) discusses what he calls the *e pluribus unum* problem, the “out of many one” problem.

Logic . . . is the science of the necessary relation of consequence. But there are many different and seemingly incommensurable logical systems. So one outstanding philosophical problem about the nature of logic is how to preserve the unity of logic while accepting the manifest multiplicity of logical systems distinct from classical or elementary logic. This is what I call the *e pluribus unum* (“out of many, one”) problem. (Hanna, 2006, p. 29)

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<sup>39</sup>Haack (1974) distinguishes between classical or elementary logics, extensions of elementary logic, and deviant logics. Hanna summarizes: ‘extensions of elementary logic introduce nontrivial changes . . . that preserve all the logical constants, valid sentences, theorems, valid inferences, and laws of elementary logic. By contrast, deviants of elementary logic introduce nontrivial changes that do *not* preserve all the classical or elementary logical constants, valid sentences, theorems, valid inferences, and laws’ (2006, p. 40). Examples of extensions of elementary logic are classical second order logic, and classical modal logics. Examples of deviant logics include relevant logic, intuitionistic logic, and paraconsistent and dialethic logics.

Hanna is concerned with preserving a certain unity of logic in the face of many logics. Insofar as he wants to accommodate some kind of unique core to logic, this is similar to my need to accommodate a class of universal, privileged logical principles. He lists three standard responses to the problem, and then goes on to defend his own, fourth, option. The standard three moves are:

1. *Diehard classicism*: maintain that classical/elementary logic is the One True Logic, and dismiss other “logics” as not being genuine logics.
2. *Diehard nonclassicism*: maintain that some nonclassical logic is the One True Logic, and dismiss other “logics” as not being genuine logics.
3. *Unconstrained pluralism*: deny that there is any One True Logic and claim that all logics are equally acceptable.

(See Hanna (2006, p. 41).)

Hanna’s proposed solution is to introduce the notion of a “protologic”. The idea is to have a universal set of principles, shared by all thinkers, which provide a schema for building up a logical system. Hanna likens his protologic to Chomsky’s notion of a universal grammar. The proposed advantage is that the protological principles can be genuinely binding on thought, accounting for the unity of logic, whilst the logics produced by employing these protological principles may vary widely. To discuss Hanna’s proposal in detail would take a lot of time and space: too much, given that it is unlikely to solve the particular problems faced by my proposed view here. In short, Hanna’s strategy seems to be to find a set of underlying principles which may genuinely be shared by *all* logics. First, these principles, in order to be so shared, will have to be extremely weak, so it is not clear that any useful notion of logical necessity could be yielded from them. Second, some of the principles I have argued may be rationally indubitable would be too strong to be included in this protologic, e.g., *modus ponens* is not straightforwardly valid in some relevant logics.<sup>40</sup> So I will need a different strategy to defend the rational indubitability of principles such as *modus ponens* in any case.

To hold (3) *prima facie* looks like it would involve abandoning the laws of thought view of logic. If different logics are equally acceptable, and if logical laws are *constitutive*-normative laws of thought, then different logics will be associated with different kinds of thought. But it does not seem plausible to suppose that advocates of different logics genuinely have different kinds of thought.

One alternative response is to reject the false dichotomy in options (1)–(3) between “diehard” and “unconstrained” responses. One might want to

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<sup>40</sup>Some relevant logics reject the disjunctive syllogism rule:  $P \vee Q; \neg P \vdash Q$ , and take it to be equivalent to modus ponens:  $P; \neg P \vee Q \vdash Q$



rule out *some* logics as genuine logics. One neither endorses only one particular logic, as many are deemed acceptable, nor is one totally unconstrained, as some logics may be ruled out if they violate the minimal principles. The “genuine” logics share a core of rationally indubitable logical principles, but may differ on less fundamental logical principles. However, the problem with this strategy concerns what to say about these non-core principles. Are they logically necessary? Surely we want to say *yes*. But then they must either be rationally indubitable—of the most basic logical principles—or follow logically from the most basic logical principles. We already know the non-core principles are not basic, so they must follow from the basic principles. But then, there is going to be a unique set of (non-basic) logical principles logically determined by the basic principles. If we are to account for non-basic principles being genuinely logically necessary, we cannot sustain a view whereby there are several genuine logics sharing a core set of logical principles, but differing in their non-basic principles (such that the non-basic principles of the different logics are logically incompatible).

After all, we have to hold that there is one privileged logic, and hence we have to endorse either (1) or (2). Exactly which logic will turn out to be the One True Logic will depend upon further work, similar to that in sections 3.4.2, 3.4.3 and 3.4.4, to highlight further rationally indubitable principles and thereby to discover what all the basic logical principles are. That is a task for another time.

This will be an unwelcome conclusion for advocates of the logical systems which will ultimately be rejected, but there are various ways to sweeten the pill. One possibility is to draw a distinction between a logic *qua* formal mathematical system, and a logic *qua* having some possible application as a system of human reasoning. In many cases the two will overlap. But a formal system may be designed which loses all touch with reasoning. Mathematical logical systems may have other interesting properties and applications, but given that the very idea of logic has come out of the study of reasoning and valid forms thereof, we might retain the idea that the study of logic and logical necessity should maintain a link to a logical system being at least in principle useable as a system of reasoning. Systems falling short may be mathematically interesting, but are not relevant for the purposes of philosophical logic.

Another option might be to introduce considerations to do with the meaning and understanding of logical constants. E.g., consider a logic which rejects *modus ponens*, but which claims to still contain a conditional. I think it is open to argue that, if a logical connective doesn’t behave so as to validate at least simple instances of *modus ponens*, then it doesn’t count as a conditional. After all, what does it even mean to assert that if  $p$ , then  $q$ , if this doesn’t mean that whenever you’ve got  $\langle p \rangle$ , you’ve also got  $\langle q \rangle$ ? If your conditional is more complex than this, such that *modus ponens* is not sufficient for conditional-elimination, at least it is necessary.

However, if a logic claimed to contain a conditional which did not conform to *modus ponens* at all, then rather than say this is not a “proper logic”, one could say that the logic is misdescribed: it contains a logical constant or connective with various properties, but that constant should not be counted as a conditional.

I noted above that Relevant logic does not straightforwardly validate *modus ponens*. Will this cause trouble for treating non-alethic modalities as relative, as discussed in section 1.2? Hopefully not. Hale avoided having to deal with McGee’s counterexamples by noting that acceptance of simple cases of *modus ponens* would be sufficient to constitute understanding of the conditional. Likewise, one could argue that acceptance of simple *relevant* cases would be sufficient for understanding, i.e. cases where the premises are relevant to the conclusion, in a way to be specified by a precise Relevant logic.

### 3.5.6 The Essence of Thought?

I will consider one final objection that the essentialist might make to this line of thought. In invoking *constitutive*-normative laws of thought, which I claim tell us about what thought is, aren’t I thereby invoking the *essence* of thought? Hence, the account rests at bottom on the essence of some thing, *thought*, which in turn provides the source of *de re* metaphysical necessities about thought, from which, on this account, logical necessities then arise. So the account of logical necessity is not after all immune to the main essentialist challenge, which was to find an account of logical necessity which can underwrite an account of metaphysical necessity as merely relative.

How can RM respond? First, it is assumed that essence is an appropriate notion when extended beyond a certain domain of entities (objects, natural kinds, etc.). *Thought* looks like a mental activity, likewise inference and judgment. Perhaps belief is rather a mental state. Even if one finds the idea that some entities (including abstract objects) have essential and accidental properties compelling, it is less clear that the same can be said of activities and states. The question of the identity of an object is different to the question of when one counts as doing something. The first might lead us to posit properties the object has which determine its identity. At most, the second might lead us to posit certain conditions to be fulfilled (e.g. one cannot count as buttering bread if one has no butter), but *prima facie*, it is not clear if this is the right kind of “thing” to bear essential properties.

In support of this reponse, note that many presentations of essentialism are biased towards a notion of essence which applies to objects, and not obviously to anything else. An extreme example of this can be found in Paul (2006). Simplifying a lot, Paul presents an account of essence by which objects are reduced to sums of properties (a bundle theory of objects), where those properties include relational properties concerning how the object is

*de re* represented. An essential property  $F$  of an object  $O$  is a part of  $O$  where  $O$  does not also have as a part the *de re* representational property of being represented as not- $F$ . Paul includes the bundle theory element into her account in order to avoid making a mistake she views Lewis as having made, which she believes will lead one to hold the wrong kind of essentialist view (see in particular Paul (2006, section 4)). Paul’s essentialism is clearly centred on the idea of an *object* having essential and accidental properties, where this is explained in terms of objects being mereological wholes composed of properties and the relations that hold between those properties. In order to accommodate any notion of essence of anything else, such as activities or properties, one would need to fill out the metaphysics of these things within Paul’s account, and see if any similar notion of essence is applicable. To straightforwardly extend the account, one would need something like a bundle theory of properties. But then, what are properties bundles of? More properties? And what are they, if not bundles of further properties? The account is best limited to objects being the only kinds of things which have essences.

Other views are not so explicitly committed to a peculiarly object-centred notion of essence, but their presentation appears to lean in that direction. E.g., in “Senses of Essence”, Fine introduces the notion of essence thus:

One may distinguish between the essential and accidental properties of an *object*. A property of an *object* is essential if it must have the property to be what it is; otherwise the property is accidental. (Fine, 1995, p. 53, my emphasis)

Likewise, in “Essence and Modality”, when he introduces the idea of essence as real definition, this is again in terms of objects.

It has been supposed that the notion of definition has application to both words and *objects*—that just as we may define a word, or say what it means, so we may define an *object*, or say what *it* is. The concept of essence has then taken to reside in the “real” or *objectual* cases of definition, as opposed to the “nominal” or verbal cases. (Fine, 1994, p. 2, my emphasis)

One may of course read Fine as using the word “object” with its most permissive reading, such that it will cover anything the essentialist might care to consider. However, the examples used centre on substantial concrete objects, abstract objects, and kinds. E.g., in Fine (1994) his examples include Socrates, {Socrates}, the Eiffel Tower, Socrates’s parents, the number 2, {2}, and objects that are persons, bodies and minds. He also considers the essences of concepts, understood as a kind of entity. There are no examples of how to extend the account to activities and practices. E.g., work

needs to be done to show that there are “objects”, in a permissive sense, corresponding to activities and practices.

One might find it perfectly plausible that, just as objects have properties, and some of those properties count as essential, so other entities such as properties themselves, relations, functions and so on, also have properties, some of which are essential to the entity. In the case of thought, presumably the idea would be that *thinking*, construed as a property of an object (e.g. Jane is thinking), has some properties itself, some of which are essential. On this kind of view, the essence of entities such as properties is modelled on the essence of objects.

Correia (2006) argues that this approach to understanding what he calls *generic essence* in terms of *objectual essence* is misguided. Generic essence is essence associated with predicate expressions, and questions such as ‘What is it to *F*?’. Objectual essence is essence associated with objectual expressions, and questions such as ‘What is *a*?’. The formulation targeted by Correia gives an account of generic essence in terms of the objectual essence of a property.

(g<sub>4</sub>) It is true in virtue of what the property of *F*-ing is that *F*s  
*G*.

(See Correia (2006, p. 760).) Correia raises three objections to this kind of treatment: COMMITMENT TO PROPERTIES, AVAILABILITY and DEPENDENCY.

The first objection is that such a view commits one to the existence of properties: (g<sub>4</sub>) explicitly draws on the idea that there is a property, *F*-ing, to go with every predicate, *F*. Even if one is happy to admit the existence of properties, one might still agree that one should be able to express statements of essence without being forced to make this admission. Statements of forms such as, ‘An *F* essentially *G*s’, ‘*F*s essentially *G*’ and, ‘It is true in virtue of what it is to *F* that *p*’ do not *prima facie* contain any commitment to the existence of properties, whereas (g<sub>4</sub>) does.

[F]riends of the property account have to say that despite appearances, generic essentialist statements do carry commitments to properties. And this, I think, is a view that should be resisted as far as possible. (Correia, 2006, p. 761)

Commitment to the existence of properties is not uncontroversially carried by a statement of generic essence. One must beware giving an account of these statements which smuggles in extra commitments.

The second objection points out that there will not be a property available for every predicate.

Another, more radical problem, is that some predicates cannot possibly express properties, while there are corresponding

true generic statements. Consider for instance the predicate ‘is a non-self-exemplifying property’. There cannot be such a thing as the property of being a non-self-exemplifying property. For if the property in question existed, it would be the case that it exemplifies itself iff it does not. Now arguably, a non-self-exemplifying property, as such, is essentially *many things*: non-self-exemplifying, a property, an abstract object, a non-self-exemplifying property, etc. (Correia, 2006, p. 761–2)

This causes problems for an account which seeks to treat all statements of generic essence in terms of the essences of properties. However, this is not a direct problem for the “essence of thought” view. Presumably, there is no comparable problem for assuming the availability of a property of thinking. The problem only arises if treating *some* generic essence statements in this way commits one to treating them this way across the board.<sup>41</sup> Note also that there are other ways out of this problem. E.g., one might introduce some kind of type-theory, such that predicates and properties are of a certain level, and may not apply at or above that level. The property of being a non-self-exemplifying property may be a perfectly good property of level  $n$ , such that it can only apply to entities of level  $n - 1$  and below. It would not make sense to consider whether this property exemplifies itself—it simply doesn’t apply at level  $n$ . So the inconsistency of the property is avoided, but it can still exist and have essential properties, such as being a property. Again, there is a way out, but one can see that considerable extra commitments are involved.

Finally, Correia raises the worry that, on this kind of view, in some cases objects will turn out to be ontologically dependent upon their essential properties in a way that we would not expect them to be.

Consider the following thesis:

(M) It is true in virtue of what the property of being a man is that every man exemplifies it.

It seems that the following general transitivity principle is correct:

(T) If  $a$  is essentially an  $F$ , and if an  $F$ , as such, essentially  $G$ s, then  $a$  essentially  $G$ s.

If we accept that (g<sub>4</sub>) entails (g) [An  $F$ , as such, essentially  $G$ s], from (M) and (T) we get the conclusion that:

(C) If  $a$  is essentially a man, then  $a$  essentially exemplifies the property of being a man.

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<sup>41</sup>Correia considers, and rejects, a strategy of restricting the account to generic statements which are not analytic. See Correia (2006, p. 762).

But consider Socrates. He is essentially a man—or so we may suppose. By (C), it is part of the nature of Socrates that he bears a certain relation, namely exemplification, to a given entity, to wit the property of being a man. It then follows that Socrates is *ontologically dependent* upon the property, that Socrates' identity depends upon the property's identity. But surely even under the assumption that both (M) and (T) are true, this may be denied: it is possible to maintain that Socrates is ontologically independent from the property of being a man, and more generally from any property whatsoever. Correia (2006, p. 762–3)

Given some plausible principles, (M) and (T), we end up with the metaphysically robust conclusion that Socrates is ontologically dependent upon the property of being a man. If Socrates is essentially a man, he does plausibly bear an important relation to the property of being a man: he will bear the property in all worlds where both he and it exist. However, one might want to allow that Socrates is still a man in worlds where there are no properties.<sup>42</sup> Correia's point is that acceding to the generic essence statement that Socrates is essentially a man, and the principles (M) and (T), should not thereby commit one to the robust thesis that Socrates is ontologically dependent upon the property of being a man. That should not simply fall out of the essence claim, but should require some extra, explicit philosophical commitments, such as a commitment to the (necessary) existence of properties.

In short, Correia raises some serious questions for how we are to understand generic essence, i.e. matters concerning the essence of *F*-ing, being *F*, or being an *F*. The initial suggestion of simply treating them analogously to the essence of objects, by reifying entities such as properties and relations, is not straightforward after all.

Correia's response is to conclude that we should not reduce generic essence to a special case of objectual essence. Rather, we should either carry on with two primitive notions of essence, generic and objectual, or effect the opposite reduction, of objectual essence to generic essence, via the introduction of individual properties, i.e. haecceities, for objects.

Some might wish to supplement the [GO-]view with a thesis which has the effect of simplifying the account of metaphysical necessity—a thesis I myself find appealing. The thesis is that to be true in virtue of what some given objects are is to be true in virtue of “what it is to be these objects”. (Correia, 2006, p. 764)

This seems a reasonable move, but it leaves us with a bare notion of generic essence. In terms of getting a grip on the notion of essence, it seems rela-

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<sup>42</sup>Perhaps nominalism is contingently true.

tively plausible that an object has some properties, and that some of those properties might be more important than others. However, this kind of loose way in to understanding essence isn't as straightforward for generic essence, especially if it is not legitimate to treat it analogously to objectual essence.

In summary, where RM may argue that essence is a notion applicable only to objects, and not to the activity of thinking, the essentialist can retort that this is a case of the essence of an entity: the property of thinking. Correia has raised some challenges for this response, but suggests that we adopt a notion of generic, as opposed to objectual, essence, which naturally accommodates properties as having essence. However, this notion of generic essence is less intuitive, and more needs to be said to flesh-out the notion. We are left wondering if there is such a thing as the essence of thought.

Another response which is open to RM is leave alone the claim that thought has an essence, but deny that this is problematic. At its most minimal, all that is meant by "essence" is what something is, and the 'thing' in 'something' is not taken seriously, but can include activities, properties, and so forth. I have offered an account of what is to think, and so arguably I have offered an account of the essence of thinking, in this minimal sense. However, this does not mean that I have to accept an essentialist account of necessity and possibility. The essentialist claims that what is metaphysically possible for something  $x$  is determined by the essence of  $x$ , such that there is no metaphysical possibility where  $x$  loses an essential property. I will argue in Chapter 5 that what is metaphysically possible for something  $x$  is whatever is compatible with conditions on experience. Now, it may be that some essentialist principles turn out to be included in or entailed by conditions on experience, but this would not be an essentialist account of necessity—the essentialist principles would be hostage to conditions on experience. In other words, the identity of things might be relevant to metaphysical modality, but it is not the be-all and end-all of metaphysical modality, because it is not all there is to conditions on experience.

To properly consider what is the most viable account of the notion of essence, and whether it encompasses activities and so on, is a task for another day. What I want to conclude here is that it is not clear how far the going accounts of essence can be stretched. Some accounts, such as Paul (2006), appear to rule out even properties from having essences. Others, such as Fine's account, just don't say enough about the intended extent of the account, although further work may tell us more. Correia (2006) has been concerned with the best way to formulate claims about the essence of anything expressed by a predicate, but being able to express a view is one thing, endorsing it another. There is more work to be done to make a case for my account of constitutive norms for thought boiling down to an account of the essence of thought. Furthermore, even if my account of logical necessity is after all correctly construed as an account of the essence of thought, there is still scope to reject an essentialist account of the link

between essence and metaphysical necessity. Hence, the essence of thought would pose no threat to RM. For now, then, I will leave this worry to one side.

### 3.5.7 The Stream of Consciousness

The proposal that logic provides constitutive norms for thought raises the question of what to say about cases which we might intuitively class as thought, but which are not properly logically evaluable. E.g., what about the stream of consciousness, composed of “snatches of thought”? Thus far I have employed a working notion of thought as minimally entertaining propositions. A thought can be this minimal, although it can be more. However, a stream of consciousness may be made up of “thoughts” which do not even involve something as well-formed as a proposition.

In response, one can claim that the scope of my account only covers thoughts which fulfil the minimal condition of entertaining of a proposition. There may be other interesting mental activities and practices in the vicinity, but these are not taken into account here. *Propositional* thought is still something we engage in. As such, an account of this in terms of constitutive-norms, and an account of logical necessity as having its source in these constitutive norms, still has a place. To accommodate the worry by making the notion of thought in play even more minimal would be a step too far. E.g., it would make no sense to develop an account of logical laws out of an account of an activity which doesn’t obviously have a relation to logic. If thought were taken to include streams of consciousness, then the most minimal cases of thought arguably would not be logically evaluable.

## 3.6 A Logical Basis for Relative Modality

In this chapter I have attempted to give an account of logical necessity which can underwrite RM. First, I explored what logical necessity is, and concluded along with McFetridge and Rumfitt that any kind of necessity which deserves the title “logical” should be that kind of necessity which is attached to a deductively valid argument. As such, the source of logical necessity will amount to the source of the logical laws governing deductively valid argument. I have gone on to develop and defend a view of the laws of logic as constitutive-normative laws of thought. The primary motivation for taking this view comes from a “logocentric predicament”. Any account of the nature of logical laws needs to take note of the inescapability or rational indubitability of logical principles. The view that what it is to think just is to engage in a mental activity which is evaluable in light of certain principles explains why we can’t shake off logic, although we can nevertheless make logical mistakes. Finally, I have considered some objections to and challenges for the proposed view.



The resulting picture is that there are norms for thought, evaluability in light of which is constitutive of a mental activity being thought or reasoning. These norms are the basic, most fundamental laws of logic. Logical laws, in turn, provide a foundation for the notion of logical necessity which attaches to a deductively valid argument or to logical consequence. Other kinds of necessity can then be defined in terms of logically necessary conditionals, with variously different antecedents, in line with the relative modality view.

## Chapter 4

# Kant and Modality

In this chapter, I examine the work of Immanuel Kant to draw out his views on modality. I argue that a plausible interpretation is to take him to be endorsing a kind of relative modality view (RM). I discuss this aspect of his views on modality, as well as other important features such as his classification of modal concepts as mere logical (as opposed to real) predicates, his rejection of necessary existence, and the distinction between real and logical possibility. The purpose of this discussion is not merely to show that RM has a history. Rather, having given an exposition of what I take to be Kant's relative view of real modality, I will take this as a guide to developing my own relative account of metaphysical modality in Chapter 5.

The plan is as follows. To begin, I present an overview of the key ideas involved in Kant's views about modality. With that in place, I look at what he says in the *Postulates of Empirical Thought* about the possibility, actuality and necessity of things. I then take a closer look at some of the particular theses arising and particular features of the view. I then look at the distinction between real and logical modality. To close, I consider the implications for abstract and mathematical objects.

### 4.1 Kant and Modality: An Overview

#### 4.1.1 The Tables of Judgments and Categories

In Kant's major critical work, *The Critique of Pure Reason*<sup>1</sup>, explicit attention to modality occurs chiefly in the context of the Table of Judgments and the Table of Categories. The modality of a judgment concerns a feature of the making of a particular judgment, irrespective of content. By contrast, the modal categories are concepts one of which must be applied in any cognition of an object, i.e. they feature in the content of a judgment.

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<sup>1</sup>Kant (1781, 1787). In the following, where this work is referenced, I will cite only the standard A/B paragraph numbers.

The table of judgments lays out the different forms a judgment may take. More specifically, it lays out the different functions which act to unify representations (concepts, intuitions, and other judgments) into judgments. For Kant a judgment is ‘the mediate cognition<sup>2</sup> of an object’ (A68/B93). A judgment is a cognition, *eine Erkenntnis*. The contemporary German word ‘Erkenntnis’ can mean something like an instance of coming to know and hence, as a term relating to knowledge, is factive. However, the use of the term in Kant’s time commonly meant something weaker: *to represent or conceive of something*.<sup>3</sup> Furthermore, Kant himself wrote about *false Erkenntnisse* (A58–9/B83–4), showing that he cannot have meant a factive notion such as ‘knowledge’. So a judgment is a representation of some kind. It is *mediate*, meaning that it represents more immediate representations (concepts and intuitions) as being some way, i.e. as being connected according to the forms of judgment. E.g., the judgment that all dogs are animals represents the concepts of *dog* and *animal* as being universally, affirmatively and categorically related, and thereby mediately represents whatever it is that those concepts more directly represent (supposedly dogs and animals). Judgments must also have an object: they must be objective, i.e. about the world. They are not mere relations amongst concepts in the mind: they represent things as objectively being a certain way, and are thereby truth-evaluable.<sup>4</sup>

One can think of the table of judgments as presenting four determinables for the form of a judgment—quantity, quality, relation and modality—each with three determinates.

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<sup>2</sup>I have here changed the translation of ‘*erkenntnis*’ from the misleading ‘knowledge’ to the more neutral ‘cognition’. I will continue to make this change where appropriate.

<sup>3</sup>“2. To conceive of a thing, whether we may conceive of it clearly or obscurely, distinctly or confusedly; in this widest meaning it is commonly used by the recent philosophers. To recognize a thing obscurely, clearly, distinctly. A merely obscurely recognised truth. To indicate something to someone, to awake an idea in him, either by means of words or in some other way. The heathens recognized God in a very confused way. In common language, as well as in the sciences, this is the most common usage.” (Adelung, 1808, vol. 1, p. 1906, passage translated by Mark Textor)

<sup>4</sup>See Leech (forthcoming) for a more thorough discussion of Kant’s notion of judgment.

TABLE OF JUDGMENTS

|                |                              |                 |
|----------------|------------------------------|-----------------|
|                | I                            |                 |
|                | <i>Quantity of Judgments</i> |                 |
|                | Universal                    |                 |
|                | Particular                   |                 |
| II             | Singular                     | III             |
| <i>Quality</i> |                              | <i>Relation</i> |
| Affirmative    |                              | Categorical     |
| Negative       |                              | Hypothetical    |
| Infinite       |                              | Disjunctive     |
|                | IV                           |                 |
|                | <i>Modality</i>              |                 |
|                | Problematic                  |                 |
|                | Assertoric                   |                 |
|                | Apodeictic                   |                 |

(A70/B95).

The first three determinables concern how the content of a judgment is organized. An instance of a judgment that is universal, affirmative and categorical might be ‘All dogs are animals’, whereas a similar judgment, that is universal, affirmative and hypothetical might be ‘If something is a dog, then it is an animal.’

The moments of modality are different. They do not provide a form for the content of the judgment, but rather concern how the content is judged on a particular occasion.

The *modality* of judgments is a quite peculiar function. Its distinguishing characteristic is that it contributes nothing to the content of the judgment (for, besides quantity, quality, and relation, there is nothing that constitutes the content of a judgment)... (A74/B99–100)

The modalities of judgment are best understood as concerning where a particular token judgment occurs in a course of reasoning or inferential structure. E.g., a problematic judgment (lacking assertoric force) is typically one in disjunctive or antecedent position, an assertoric judgment is typically one in premise position, and an apodeictic judgment is typically judged as the conclusion to an inference.

Thus, for instance, in a hypothetical syllogism the antecedent is in the major premise problematic, in the minor assertoric, and what the syllogism shows is that the consequence follows in accordance with the laws of the understanding. The apodeictic proposition thinks the assertoric as determined by these laws of

the understanding, and therefore as affirming *a priori*; and in this manner it expresses logical necessity. (A75–6/B101)

The claim that every judgment has a modality, combined with the claim that the modality of a judgment is its location in a course of reasoning, gives rise to the intriguing thesis that every judgment occurs in a course of reasoning. This is an interesting view to consider, but it falls outside of the remit of the current project. Kant’s modalities of judgment do not concern what it is for a proposition to be necessarily or possibly true, or what it is for an object to possibly exist, or to have necessary properties. These are claims that concern the content of a judgment: either by occurring in that content, or by depending upon the content (in the case of truth). The modality of a judgment concerns only its position in an inferential structure, and not at all the content of the judgment.<sup>5</sup>

Kant goes on to take the table of judgments to provide a “leading thread” (*Leitfaden*) towards the table of categories. Where the functions appearing in the table of judgments are said to apply to the combination of representations into a judgment, the table of categories presents *a priori* concepts, one of which from each of the four groups must be applied in order to produce a *bone fide* representation of an object of experience.

In this manner there arise precisely the same number of pure concepts of the understanding which apply *a priori* to objects of intuition in general, as, in the preceding table, there have been found to be logical functions in all possible judgments. (A79/B105)

The categories concern groups of concepts of which one of each must be applied in any representation or experience of an object. Again, one can understand them on the model of determinables and determinates. Every object must have a size, shape, causal profile, and so on.

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<sup>5</sup>See Leech (forthcoming). See also Longuenesse (1998, pp. 157–161). E.g.

... the modality of judgment is determined by its relation to the forms of thought involved in deductive reasoning (judgments and syllogisms), not by its internal components (its “matter”). (Longuenesse, 1998, p. 159)

TABLE OF CATEGORIES

|   |   |   |
|---|---|---|
|   | <p>I</p> <p><i>Of Quantity</i></p> <p>Unity</p> <p>Plurality</p> <p>Totality</p>  |   |
| <p>II</p> <p><i>Of Quality</i></p> <p>Reality</p> <p>Negation</p> <p>Limitation</p> |   | <p>III</p> <p><i>Of Relation</i></p> <p>Of Inherence and Subsistence<br/>(<i>substantia et accidens</i>)</p> <p>Of Causality and Dependence<br/>(<i>cause and effect</i>)</p> <p>Of Community (reciprocity<br/>between agent and patient)</p> |
|   | <p>IV</p> <p><i>Of Modality</i></p> <p>Possibility—Impossibility</p> <p><i>Existence—Non-existence</i></p> <p>Necessity—Contingency</p> |   |

(A80/B106)

Each group of categories is expounded upon in further detail: categories of quantity in the *Axioms of Intuition*; categories of quality in the *Anticipations of Perception*; categories of relation in the *Analogies of Experience*; and categories of modality in the *Postulates of Empirical Thought in General*.

#### 4.1.2 Modal Categories and the *Postulates*

Kant argues that there are *pure concepts of the understanding* or *categories*. These are concepts that must be applied in experience in order for us to experience the world as we do.<sup>6</sup> The application of a pure concept is not justified by experience, but by its being a prerequisite of having any experience (of the kind we have) at all. One might say that these concepts are not acquired from any particular experience, but are “in us” prior to experience.<sup>7</sup> There are four sets of three concepts; *quality*, *quantity*, *relation* and *modality*. The categories of modality are:

<sup>6</sup>Here take “we” to stand for, roughly, mentally mature creatures, human or similar, with experience of an objective world. I will not address concerns regarding the status of infants and higher animals here.

<sup>7</sup>This should not be taken to imply that pure concepts are to be understood as *innate* concepts. The point is not that we are somehow “born with” these concepts, but that these concepts play a peculiar role in our capacity for cognition and experience of the world.

Possibility—Impossibility  
Existence—Non-existence  
Necessity—Contingency

Kant does not explicate the categories immediately after their introduction in the *Critique*, but concentrates on their deduction, i.e. on establishing that they are applicable to experience even though they are *a priori* and not derived from experience. A fuller discussion of how we are to understand the modal categories appears soon after in the *Postulates of Empirical Thought in General* (A218–235/B265–288). This occurs as part of the *Systematic Representation of all the Synthetic Principles of Pure Understanding*. In other words, in this part of the *Critique*, Kant tries to systematically lay out those rules to which our cognitive faculties must conform when forming experience out of given input. The *Postulates of Empirical Thought* is the section in which he discusses those rules pertaining to the modal categories.

These rules are:

1. That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is *possible*.
2. That which is bound up with (*zusammenhängt*) the material conditions of experience, that is, with sensation, is *actual*.
3. That which in its connection with the actual is determined in accordance with universal (*allgemeinen*) conditions of experience, is (that is, exists as) *necessary*.

(A218/B265—6).

They are then explained as follows:

The categories of modality have the peculiarity that, in determining an object, they do not in the least enlarge the concept to which they are attached as predicates. They only express the relation of the concept to the faculty of cognition. Even when the concept of a thing is quite complete, I can still enquire whether this object is merely possible or is also actual, or if actual, whether it is not also necessary. No additional determinations are thereby thought in the object itself; the question is only how the object, together with all its determinations, is related to understanding and its empirical employment, to empirical judgment, and to reason in its application to experience.

Just on this account also the principles of modality are nothing but explanations of the concepts of possibility, actuality, and necessity, in their empirical employment; at the same time they restrict all categories to their merely empirical employment, and do not approve or allow their transcendental employment. For

if they are not to have a purely logical significance, analytically expressing the form of *thought*, but are to refer to the possibility, actuality, or necessity of *things*, they must concern possible experience and its synthetic unity, in which alone objects of cognition can be given. (A219/B266–7)

These postulates are intended to explicate the rules or principles governing our modal concepts. The first paragraph of the explanatory passage lays out the overall view: the modal status of an object (i) does not enrich the concept of that object, but rather (ii) is determined by a relation between the concept of that object and “the faculty of cognition” or to “understanding and its empirical employment, to empirical judgment, and to reason in its application to experience”. Note the two claims: there is the negative claim that modality is not a first-level property of objects, and the positive claim that modality of things concerns a relation between the concept of a thing on the one hand, and something to do with empirical experience and cognition of the world on the other.

The second paragraph emphasises that this is an account of modality as a feature of the empirical world, the world we experience. As such, conditions on the very possibility of this world of experience must be taken into account. If these concepts are to be about things in the world of experience, then they will have to respect conditions on the possibility of experience. If these conditions were not taken into account, we would end up with an account of another kind of modality. Later I will discuss Kant’s distinction between real and logical modality. He is alluding to such a distinction here. For an account of real, rather than merely logical, modality, we must take into account not only merely logical features of the concept of a thing, but also how it relates to conditions on experience.

A quick note on universal and formal conditions on experience: The formal conditions on experience are those conditions pertaining to formal features of experience, rather than the matter of experience. Regardless of the particular matter entering into the world of experience, if it is not of a certain form, it will not be counted as possible. E.g., one of Kant’s theses is that all objects of experience must be experienced in time, and all external objects of experience must be experienced in a spatial framework—non-spatiotemporal external objects will therefore not count as possible. The universal conditions of experience can be understood as those applying across the board: if something is to count as possible, it must conform to these conditions. It looks as though these conditions, formal and universal, match up insofar as they are both sets of conditions to which all objects of experience must conform. From this point on, then, I shall take them to be the same.

Another passage provides a summary of the overall view.

The principles of modality are not, however, objectively syn-



thetic. For the predicates of possibility, actuality, and necessity do not in the least enlarge the concept of which they are affirmed, adding something to the representation of the object. But since they are none the less synthetic, they are so subjectively only, that is, they add to the concept of a thing (of something real), of which otherwise they say nothing, the cognitive faculty from which it springs and in which it has its seat. Thus if it is in connection only with the formal conditions of experience, and so merely in the understanding, its object is called possible. If it stands in connection with perception, that is, with sensation as material supplied by the senses, and through perception is determined by means of the understanding, the object is actual. If it is determined through the connection of perceptions according to concepts, the object is entitled necessary. The principles of modality thus predicate of a concept nothing but the action of the faculty of cognition through which it is generated. (A233–4/B286–7)

Again we have the negative claim that modal concepts do not add to the concept of an object, alongside the positive claim that they concern a relation between that concept and our cognitive faculties, i.e. the conditions they impose upon the world. These principles are not “objectively synthetic”, but are subjective. They do not concern a property an object has on its own, independently of any subject, but rather they concern the object as it relates to some “cognitive faculty”. What is important here is not so much the particular faculty Kant says is relevant, but the connection between possible experience and our cognitive faculties. Kant is known for having rather a mania for system, to the detriment of some of his ideas. The balance of different modalities being seated in different faculties looks suspiciously tidy. The key point is that conditions of experience are said to stem from our cognitive faculties. If there are constraints upon experience, then according to Kant, they have something important to do with our cognitive constitution. So when he writes about our cognitive constitution here, we are to understand that the key thought concerns the conditions on experience. Possibility is mere compatibility with these conditions. Actuality is straightforward empirical experience. Necessity is what follows from given experiences and the laws apparent in those conditions. And no object could be possible, actual or necessary in the absence of some subjective conditions on experience. In some sense, yet to be explained, modality looks like it may turn out to be mind-dependent (see section 4.3.4).

### 4.1.3 The Concept of a Thing

An important preliminary clarification is to highlight the role of the “concept of a thing”. Kant makes it fairly clear that these modal concepts are

intended to concern things or objects. However, much of their explication makes use of “the concept of a thing”.

The categories of modality have the peculiarity that, in determining an *object*, they do not in the least enlarge the *concept* to which they are attached as predicates. They only express the relation of the *concept* to the faculty of cognition. Even when *the concept of a thing* is quite complete, I can still enquire whether this *object* is merely possible or is also actual, or if actual, whether it is not also necessary. No additional determinations are thereby thought in the *object* itself; the question is only how the *object*, together with all its determinations, is related to understanding and its empirical employment, to empirical judgment, and to reason in its application to experience. (A219/B266–7, my emphasis)

Kant is clearly concerned with the modality of objects/things, however, this *concept* of a thing appears to play an intermediary role. One might read Kant as claiming that it is the *concept* of an object which is compatible with or determined by conditions on experience, rather than the object or thing itself, and hence that an object is possible just when the concept of it is in agreement with the formal conditions on experience. On this reading, the modal status of an object will depend upon a relation between the concept of that object and conditions on experience.

By “modal status” I mean whether the object is possible, actual or necessary—Kant tends to use modal adjectives in this way. But what does it mean for an object to be possible, actual or necessary? The most straightforward sense is to take these modal adjectives to mean *possibly exists*, *actually exists* or *necessarily exists*. In what other sense could an object be possible? I suppose an entity might not be an object, and yet be a possible object, in the same way that an unused hunk of clay might be called a possible statue. But the notion of a thing which is a potential *object* but not yet an object seems too strange.

Why does Kant go via the concept of a thing? A plausible rationale might go something like this. The modal categories are supposed to concern certain compatibility and determination relations between conditions on experience and objects. But what about a possible object? There is no object to be related to, or assessed against, the relevant conditions. If we want to ask if there could be a talking donkey, even though there actually isn't, we don't assess a talking donkey against the conditions on experience—there is no talking donkey available. But what we can do is use our concept of a talking donkey, and consider how *that* is related to conditions on experience. So when considering modal matters, it makes better sense to make use of our concepts of things to find out about their modal properties.

What if there were no concepts? Then one *relatum* of the relation which determines modality would be missing, and so the object would have no modal status. It would seem that any modal status for objects will depend upon the existence of concepts of those objects. But fair enough. If, in the most general terms, concepts are required for human-like experience, i.e. some kind of categorizing capacities are required in addition to some kind of sensory or receptive capacities, then in cases where there is human-like experience, there will be concepts. What about cases where there is no human-like experience—will there be concepts? We don't need to answer this question, because the other *relatum* of the relation determining modal status is conditions on human-like experience. So the absence of this kind of experience would also appear to rule out any determination of modality, apart from whether or not there are concepts. Of course, the claim that the kind of modality which applies to things is restricted to the realm of experience of creatures similar to us is a substantial thesis, to be considered in its own right.

Given this important role for concepts in the account, it is important to get clear on Kant's notion of the concept of a thing. First, this is not an individual concept, i.e. a concept which by its nature picks out only one thing, such as *the concept of being identical to Bertrand Russell*. For Kant, a concept is by its nature a *general* (re)presentation. A *particular* presentation is an intuition. Taken alone, a concept cannot be expected to pick out an individual, because then it would fail to be general, although of course it may turn out that only one object in fact falls under a concept. In order to guarantee picking out an individual object, intuitions as well as concepts are required. Combining concepts with intuitions gives us cognition of objects and states of affairs.

All cognitions, that is, all presentations consciously referred to an object, are either *intuitions* or *concepts*. Intuition is a *singular* presentation (*repraesentatio singularis*), the concept is a *general* (*repraesentatio per notas communes*) or *reflected* presentation (*repraesentatio discursiva*). Cognition through concepts is called thinking. (Kant, 1800, p. 96)

Although concepts cannot be expected to be necessarily such that they pick out one thing, it is perhaps reasonable to suppose that some concepts can be maximally specified, so that in practice only one thing falls under the concept.

Indeed, Kant contrasts two different principles of determination. Kant claims that every concept is subject to the *principle of determinability*: for each pair of contradictorily opposed predicates, only one of the pair can belong to a concept.

Every concept is, in respect of what is not contained in it, undetermined, and is subject to the principle of *determinability*.

According to this principle, of *every two* contradictorily opposed predicates only one can belong to a concept. This principle is based on the law of contradiction, and is therefore a purely logical principle. (A571/B599)

This is taken to be a purely formal or logical constraint on a concept: for any concept, it should not include both *being F* and *being non-F* for some predicate *F*.

The second principle is more useful when considering how one might fully specify an object through a concept. The *principle of complete determination* states that, for every pair of contradictorily opposed predicates, every *thing* (note, not concept) has one or other of the pair of predicates as belonging to it. I.e., for every predicate *F*, and every thing *x*, either *x* is *F* or *x* is non-*F*.

But every *thing*, as regards its possibility, is ... subject to the principle of *complete* determination, according to which if *all the possible* predicates of *things* be taken together with their contradictory opposites, then one of each pair of contradictory opposites must belong to it. (A571–2/B599–600)

This is a principle primarily and ostensibly concerning *things*, however, Kant also writes

It is the principle of the synthesis of all predicates which are intended to constitute the complete concept of a thing, and not simply a principle of analytic representation in reference merely to one of two contradictory predicates. (A572/B600)

In contrast to the principle of determinability, which places a constraint on *any* pair of contradictory predicates which might be considered, this principle concerns *every* such pair, and demands that a complete concept of a thing determine the thing with respect to every pair of contradictorily opposed possible predicates. It seems, then, that the closest we can get to a concept that can pick out an individual object will be the most determinate kind of concept: the complete concept of a thing.

However, things are not quite so simple. First, Kant's discussion of the principle of complete determination occurs in the *Transcendental Dialectic*, in his discussion of our idea of God, and problems concerning rational theological arguments for the existence of God. He argues that this principle presupposes a transcendental idea, namely, "the sum-total of all possibilities".

This principle does not rest merely on the law of contradiction; for, besides considering each thing in its relation to the two contradictory predicates, it also considers it in its relation to *the sum*

*total of all possibilities*, that is, to the sum-total of all predicates of things. (A572/B600)

Kant argues that this sum-total of all predicates of things is a necessary presupposition of reason, but also that it necessarily leads to the transcendental error of thinking that there exists a necessary being which is the ground of all reality, i.e. God. To go into detail here would involve too great a digression.<sup>8</sup> The important point for present purposes is whether we need to be worried that fully determining a concept appears to involve some kind of transcendental error.

The short answer is, no we don't. The danger of the transcendental idea is when we mistake it for something that is applicable to the empirical world, i.e. we take it to refer to an objectively-real being. Understood properly as a mere regulative principle of reason, there is no problem. The idea of this sum-total should not be understood as referring to something real in the world, but rather as an idea which guides good functioning of reason and the understanding. Put very simply, in determining a complete concept of a thing, we should not think of the totality of all possible predicates as a given, from which we carve out the concept. Rather, it can be thought of as a goal, i.e. we should strive towards taking into account every possible predicate, even though we cannot encounter them all together as a totality in the world. Longuenesse (2005) puts it nicely:<sup>9</sup>

... the representation of a *totum realitatis* as the complete whole of ... determinations of things can only be a goal which reason sets to the understanding for the improvement of its knowledge, not an actually given whole. The illusion of rational metaphysics is precisely to think that such a whole is actually given in pure intellect alone, rather than having to be generated by the sensibly conditioned understanding. (2005, p. 220)

In short, there is no reason to think that we cannot form a completely determinate concept of a thing, although Kant would remind us that doing so makes a certain presupposition, which may lead us into error if we are not careful.

Even if we can form the complete concept of a thing, this may not be sufficient to guarantee picking out an individual object. The complete concept of a thing is a concept composed of, for every possible predicate, either it or its negation. Such a concept could hardly be more specific, but it is still a concept given that it is general in form. Conceivably two different

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<sup>8</sup>See Grier (2001) Chapter 7, for a detailed reconstruction and interpretation.

<sup>9</sup>Grier and Longuenesse disagree vehemently over how Kant's arguments in the *Transcendental Ideal* are to be understood. See e.g. Grier (2001, pp. 237–243) for Grier's critique of Longuenesse. For present purposes, I do not need to defend one interpretation over the other (although I am writing under the assumption that Grier wins).

individual objects could fall under the same complete concept. Indeed, this is at the heart of Kant’s rejection of the principle of the identity of indiscernibles. Even if two objects are indistinguishable as regards the concept of them, they may still be distinct given that distinct intuitions may be involved. (See A281/B337-8). Two distinct particular presentations may fall under the same complex complete concept. Note that this is only a problem if we are concerned with the possible existence of a particular individual. But such cases are rather rare. E.g., suppose I want to know if Sherlock Holmes could have existed. Suppose further that I flesh-out my concept of Holmes to include for every pair of contradictorily opposed predicates one or other predicate. If this concept is non-contradictory and compatible with the conditions on possible experience, surely this is enough to ensure that Sherlock Holmes is possible. It is not as though there is a particular non-actual individual object, and I care about whether *that* thing is possible.<sup>10</sup>

In short, where Kant writes of the concept of a thing, I will not take this to be an individual concept, but rather a concept sufficiently specified to happen to pick out, in most cases, individual objects.

#### 4.1.4 Relative Modality

Looking again at the rules for modal concepts, one can quickly see that they invoke some notion of relative modality. I did not discuss actuality before, so I will set it aside for the moment. First, read “agrees with” as “is logically compatible with”, and “determined in accordance with” as “follows logically from”. Second, read “*a* is possible” as “possibly, *a* exists”, and “*a* is necessary” as “necessarily, *a* exists”. Third, given that we have only concepts of things, not individual concepts, “*a* exists” should not be formalized as “ $\exists x(x = a)$ ”, but rather as “ $\exists xAx$ ”, where “*A*” details the concept of *a*. Finally, take “*C* $\varphi$ ” to mean something like “ $\varphi$  is a conjunction of formal/universal conditions of experience”. We then have the following. The rules

That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is *possible*.

That which in its connection with the actual is determined in accordance with universal conditions of experience, is (that is, exists as) *necessary*.

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<sup>10</sup>This may invite an objection to the effect that if someone in the actual world happened to have exactly all the properties specified by the complete concept of Holmes, then that person would count as being Holmes, although Conan Doyle intended his character to be completely fictional. I will not consider problems associated with fiction here. For a sample of the debate see Ryle (1933); Moore (1933); Lewis (1978).

can be understood as saying something like

$$\begin{aligned}\diamond_R \exists x Ax &\equiv \neg \exists \varphi (C\varphi \ \& \ \Box(\varphi \rightarrow \neg \exists x Ax)) \\ \Box_R \exists x Ax &\equiv \exists \varphi (C\varphi \ \& \ \Box(\varphi \rightarrow \exists x Ax))\end{aligned}$$

I.e. possibly<sub>R</sub> *a* exists (there could be something falling under the concept *A*) just when there is no conjunction of formal conditions of experience which rules out *a*'s existence; and necessarily<sub>R</sub> *a* exists just when there is a conjunction of universal conditions of experience which logically entails *a*'s existence. Note that “ $\Box$ ” stands for logical necessity. I have used a subscript *R* to distinguish the kind of modality being defined by the categories—real modality—which will be explained in due course.

I discuss this relative modality feature of Kant's view in more detail below. But it should be clear from the start that his explication of the modal categories immediately suggests some kind of relative modality view.

#### 4.1.5 Possible Experience

The notions of possible experience and conditions on experience play a crucial role in Kant's views about modality. To clarify, possible experience is not to be understood as *what we could experience* if “could” is taken to mean something like “practically possible” or “physically possible”. Two examples spring to mind.

First, Parsons (1964) has highlighted a problem for reconciling the notion of possible experience with Kant's comments on infinity. On the one hand, he claims, Kant's theory of intuitions includes the claim that space and its contents are infinitely divisible and indefinitely complex.

It follows from the fact that the empirical objects of perception are in an infinitely divisible space that they are *indefinitely complex*. For the spatial region which an object occupies can be divided into subregions, which again can be so divided, and so on. (Parsons, 1964, p. 185)

The objects of empirical perception are objects of possible experience, given that they are objects of actual experience. Parsons then raises problems for the idea that we could perceive this infinite complexity in objects of possible experience. Given the perceptual powers we in fact have, we would not be able to perceive complexity beyond certain limits.

[Kant] must hold that we represent objects as being in a space and time having parts which are beyond the experience of a thoroughly finite being, and that this arises from the form of our sensibility. But this cannot be justified phenomenologically. (Parsons, 1964, p. 196)

If “practically possible” was the notion of possible experience in play, the complex features that we are unable to perceive could not count as part of possible experience as opposed to the claims presented as part of the theory of intuition. ‘Thus it appears that the “possibility of experience” for Kant must extend beyond what is practically possible for the sort of being we have reason to think we are’ (1964, p. 193). The problem is to make sense of what “could” means in “what we could experience”.

A second example concerns Dummett’s notion of a *verification transcendent statement*, a statement whose truth or falsity we would never be able to verify.<sup>11</sup> Examples include statements about the past for which no evidence remains, such as “There were 101 hairs on Julius Caesar’s head when he died”; statements about non-manifested character traits, such as “Jones was brave” for Jones who is now dead and who never showed any behaviour pertaining to bravery or cowardice throughout his life; and certain statements about the future such as “There will never be a city built on this spot”, for which we would need experience infinitely extended forward in time. We could have no experience to confirm or disconfirm these statements (they transcend verification). But the intuition is that Jones could have been brave, or that it is possible that Julius Caesar had 101 hairs on his head when he died, or that it is possible that a city will never be built on this spot. Indeed, it would be strange to claim that it is *impossible* that Julius Caesar could have had 101 hairs on his head when he died, even if you agree that the statement “Julius Caesar had 101 hairs on his head when he died” cannot be verified. So although in one sense we could not experience Jones’s bravery or the number of hairs on Julius Caesar’s head when he died, if we want to count these statements as possibly true, we need a notion of possible experience that admits them.

I think the response to these problems is to construe possible experience, not as dependent on the circumstances in which one could have a particular experience of some thing, but rather as dependent upon universal rules and features. Practically speaking, I could not find myself in a circumstance where I would be able to verify that Jones was brave, but Jones being brave is compatible with universal rules and features of experience, e.g. the notion of Jones as a human being with a particular character trait is not logically contradictory and does not violate certain laws of physics. Jones’s being brave qualifies as something that could feature in experience given its compatibility with certain rules and features; this does not imply that one can verify (or falsify) that Jones was brave. Possible experience is then experience which is compatible with certain universal conditions, not experience which one could have in some practical sense of “could”.

Defining modality whilst leaning heavily on a notion of “possible experience” might seem circular. However, the shape of the account sketched

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<sup>11</sup>See e.g. Dummett (1959, 1978).



so far should go some way to alleviating this concern. First, if RM can in general stand up to its main objections, this reduces the task of explaining modality to the nature of logical modality and the status of the base class of propositions from which interesting kinds of relative necessity follow. The notion of “possible experience” then enters in when giving a Kantian account of the base class of propositions from which Kant’s “real” necessities follow. This is not immediately circular, because the conditions on experience involved in the notion of “possible experience” are not so much defined in terms of *real possibility*, but in terms of the categories.

In summary, Kant’s notion of possible experience should not be understood in terms of *what we could experience* practically speaking, but in terms of conformity to certain conditions or constraints. The basic notion is not really, after all, possible experience, but rather certain constraints on experience, necessary conditions to which experience must conform. Possible experience is then simply experience which conforms to them. These constraints, for Kant, are provided by the *a priori* or “pure” elements of our cognitive faculties that contribute to the nature of experience, without which we could not have the kind of experience that we in fact have. (See section 4.3.3 below for some alternative ways to understand these elements without having to rely on the transcendental idealist explanation in terms of cognitive faculties.) This leaves open a huge question concerning how we might argue for there being such conditions on possible experience, and how we might discover what they are. The answer to these questions is part of what Kant tries to achieve in the first *Critique*. For now I will grant the resulting view. I will consider why we might want to be in broad agreement with Kant on this in Chapter 5.

## 4.2 Possibility, Actuality and Necessity

### 4.2.1 Possibility

*That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is possible.*

Possibility is a matter of agreement with the formal conditions of experience. It is important that this is not merely a constraint on concepts, e.g., that the concept of an object be merely non-contradictory. Kant would agree that, e.g., round squares are not possible. There could be no object corresponding to the concept of a round square in experience. However, for possibility Kant requires more.

The postulate of the *possibility* of things requires that the concept of the things should agree with the formal conditions of an experience in general [...] It is, indeed, a necessary logical

condition that a concept of the possible must not contain any contradiction; but this is not by any means sufficient to determine the objective reality of the concept, that is, the possibility of such an object as is thought through the concept. Thus there is no contradiction in the concept of a figure which is enclosed within two straight lines, since the concepts of two straight lines and of their coming together contain no negation of a figure. The impossibility arises not from the concept in itself, but in connection with its construction in space, that is, from the conditions of space and of its determination. And since these contain *a priori* in themselves the form of experience in general, they have objective reality, that is, they apply to possible things. (A220-1/B267-8)

The kind of possibility here is supposed to apply to *things*, not just concepts. Whilst it is accepted that a concept of a thing should at least be non-contradictory to have any hope of referring to something possible, that is not sufficient. One must also take into account “the formal conditions of an experience in general”. These include certain concepts that should be applied, such as causal relations, specified in the table of categories, as well as the forms of intuition, whereby the data of experience is put into spatio-temporal form as a consequence of the constitution of our receptive faculties. The example given is supposed to illustrate how a concept—say, of a figure which is enclosed within two straight lines—may be non-contradictory, and yet incompatible with the conditions on experience, because such a concept could not be exemplified, in this case, in space.

Kant’s geometrical example comes along with a host of problems. First, one might wish to maintain that space-times with different geometries to the actual space-time we occupy are really possible, e.g., if you think physical necessity is distinct from metaphysical necessity, where the behaviour of space-time is a matter for physics. Second, it is not clear whether the geometry of space as we experience it is the same as the geometry of space objectively speaking, in the empirical world. Many of the principles of Euclidean geometry seem natural, and it is difficult to imagine how they could fail to hold, yet certain scientific theories suggest that space is in fact not Euclidean. Third, the example relies upon Kant’s claim that geometry is synthetic, not analytic. However, one might take geometry to be an analytic discipline concerning the logical consequences of a set of analytic definitions (such as the definition of a straight line as the shortest distance between two points). Geometrical statements such as ‘There could be a figure enclosed by two straight lines’ would consequently come out as either conceptually necessary (or conceptually contradictory) after all.

Setting aside this difficult example, the key idea is that there must be more conditions than mere non-contradictoriness to be met by the concept

of an object for it to count as having a corresponding object in possible experience. We can describe these conditions loosely as conditions on the possibility of experience. Some of them may pertain to necessary conditions on the form of intuitions: in order to have experience or cognition of a thing, Kant requires that there be an intuition as well as concepts, and intuitions are supposed to bring with them temporal structure (and spatial structure for outer things). Some of the conditions may pertain to general features of the conceptualization of intuitions, i.e. it is the categories, pure concepts, that are supposed to bring with them causal order. It remains to be seen how far one should adhere to Kant's division between intuitions and concepts, but we can grasp the general idea without having to immediately commit to a distinction between "spontaneous" and "receptive" sources of these conditions.

There are two key features so far in Kant's account of possibility. First, an object is possible if (the concept of) the object is compatible with conditions on possible experience. More generally, if we take "is possible" to mean "possibly exists", and if we take into account that fact that it is propositions that can be compatible or not strictly speaking, rather than objects or concepts, we have a view whereby the proposition that the object exists<sup>12</sup> is compatible with the conditions on experience. Kant stresses that it is not the concept of a thing alone which determines the possibility of the thing: it is only in relation to universal conditions of experience that anything can be cognized as being possible or not.

If I represent to myself a thing which is permanent, so that everything in it which changes belongs only to its state, I can never cognize from such a concept that a thing of this kind is possible. . . . Only through the fact that these concepts express *a priori* the relations of perceptions in every experience, do we cognize their objective reality, that is, their transcendental truth, and this, indeed, independently of experience, though not independently of all relation to the form of an experience in general, and to the synthetic unity in which alone objects can be empirically cognized. (A221–2/B268–9)

Second, we have an account of the status and source of the conditions on experience. They are *a priori* concepts or forms of intuition. Kant understood these to arise from the constitution of our cognitive faculties, but there are more minimal interpretations. Strawson's austere interpretation of *a priority* can help us to understand the status of such conditions: 'a concept or feature (element) could be called *a priori* if it was an essential structural element in any conception of experience which we could make intelligible to ourselves' (Strawson, 1966, p. 68). If there were indeed any

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<sup>12</sup>I.e. there is something which falls under the concept of the object,  $\exists xAx$ .

such essential structural elements, then if a concept of an object somehow violated this essential structure, if the proposition that something falls under the concept was incompatible with it, we would not be able to make intelligible to ourselves any conception of experience in which that object might exist. Hence, it could not be said to be an object of possible experience (assuming that intelligibility of conceptions of experience are either constitutive of or at least a reliable guide to possible experience).<sup>13</sup>

Kant stresses the importance of the universal conditions on experience by discussing how we should treat the modality of “invented” concepts. Presumably concepts such as that of Sherlock Holmes count as invented; we do not take them as is from experience, but construct them out of other concepts. But as long as those other constituent concepts are objectively real, there should be no *prima facie* problem in the object described counting as possible or not. Kant raises concerns regarding invented concepts which are neither *a priori* nor verifiable in experience (either directly or through the laws of experience). He claims that they cannot be cognized as really possible (or not) at all—there is no criterion of their possibility.

But if we should seek to frame quite new concepts of substances, forces, reciprocal actions, from the material which perception presents to us, without experience itself yielding the example of their connection, we should be occupying ourselves with mere fancies, of whose possibility there is absolutely no criterion since we have neither borrowed these concepts [directly] from experience, nor have taken experience as our instructress in their formation. Such fictitious concepts, unlike the categories, can acquire the character of possibility not in *a priori* fashion, as conditions upon which all experience depends, but only *a posteriori* as being concepts which are given through experience itself. And, consequently, their possibility must either be cognized *a posteriori* and empirically, or it cannot be cognized at all. (A222/B269-70)

In order for a concept of something to have a criterion of possibility at all, it would seem that the concept must either be a standard empirical concept, derived from experience directly, e.g. I perceive a particular tree and so acquire the concept of that tree, or *formed under the instruction of experience*, i.e. the concept of the thing is constructed by us, perhaps as with the concept of Sherlock Holmes, but taking experience as a guide. Presumably this means constructing the concept with the laws of experience or the laws of nature in mind, as well as our actual experiences (e.g. I can construct a concept of Sherlock Holmes on the basis of having experienced other similar human beings).

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<sup>13</sup>I discuss the austere interpretation as contrasted with a transcendental idealist interpretation more in section 5.2.1.

What would it be to form a concept without taking experience as our “instructress”? Kant gives examples of the kinds of things he has in mind.

A substance which would be permanently present in space, but without filling it (like that mode of existence intermediate between matter and thinking being which some would seek to introduce), or a special ultimate mental power of *intuitively* anticipating the future (and not merely inferring it), or lastly a power of standing in community of thought with other men, however distant they may be—are concepts the possibility of which is altogether groundless, as they cannot be based on experience and its known laws; and without such confirmation they are arbitrary combinations of thoughts, which, although indeed free from contradiction, can make no claim to objective reality, and none, therefore, as to the possibility of an object such as we here profess to think. (A222–3/B270)

By not taking experience and its laws into account, we are left with concepts the instantiation of which can have no confirmation or disconfirmation in experience. And, given that these are not *a priori* concepts of the understanding, that is the only kind of confirmation they could hope for. Perhaps the problem could be framed in terms of *applicability*. The categories are applicable to the world of experience because their application is a necessary condition on there being experience of this world at all. Most empirical concepts are applicable because they are acquired from experience, or fabricated from other concepts according to the laws of experience. It is conceivable, however, that I could invent a concept of something which contained nothing either incompatible with or determined by the conditions on possible experience, leaving no way to test its applicability to experience against these conditions.<sup>14</sup>

#### 4.2.2 Actuality

*That which is bound up with the material conditions of experience, that is, with sensation, is actual.*

So far I have said very little about actuality. My main concern in this thesis is with different kinds of possibility and necessity—if actuality is just plain *being the case*, then I’m happy to leave it alone for now. However, actuality is more important for Kant, given the idea of the modal categories as determinables. An object is supposed to be either merely possible, actual

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<sup>14</sup>Kant can be read as claiming that such concepts, with no empirical consequences, should be counted as meaningless. In section 4.4.1 I discuss this thesis of *concept empiricism*.

or necessary. In understanding Kant's views on the nature of these modal concepts, then, actuality is one third of the picture.

That said, there is an important difference between actuality and the other two modal categories. Where possibility and necessity are concerned with *formal* and *universal* conditions on experience, actuality is given an account in terms of the *material* conditions of experience. Whereas possibility and necessity are concerned with the mere form of possible experience, actuality differs in being concerned with the matter of experience. A rough illustration might be: the concept of a talking donkey is, perhaps, compatible with the merely formal conditions on experience (unlike a donkey with telepathic powers, perhaps), however, if there are no talking donkeys, then there is nothing in the matter of experience which is a talking donkey, and so there are no actual talking donkeys, although they are possible. Or, the cat's sitting on the mat is compatible with the merely formal conditions on experience (unlike, say, the cat's being causally isolated from the mat), however, if the cat is not on the mat, then there is nothing in the matter of experience which is the cat's being on the mat, and so it is not actually the case, although it is possibly the case. The category of actuality is, then, quite different from those of possibility and necessity. I will therefore continue to focus on possibility and necessity, although I will briefly look at Kant on actuality first.

For some thing to be actual is for it to be 'bound up with the material conditions of experience, that is, with sensation.' These conditions on experience pertain to the *matter* of experience, rather than its *form*. This, according to Kant, is *sensation*. This need not be understood to mean that all experience is *sensory experience*, coming from stimulation of one of the five senses. The notion of experience here importantly involves the combination of *sensibility* with the understanding, i.e. given input is conceptualized and we are left with experience as we know it. This includes inner sense; our experiences of our own thoughts, feelings and inner life are considered to be constructed in the same way as our outer experiences, out of given input (the manifold of intuitions) in sensibility and applied concepts in the understanding. I cannot sense my inner life via sight, hearing, touch, taste or smell, so either Kant is restricting his notion of actuality to outer experience, or we should understand "material conditions" and "sensation" in a broader sense than "of the five senses". The latter makes more sense. We might wish to discuss the actuality of thoughts, dreams, inner dialogues and so on. Indeed, if my thought that there are five human senses didn't actually exist (regardless of the difficulties associated with its identity conditions), how would I have just been able to experience the thinking of it? Even if inner experiences are ultimately reducible to electrical patterns and events in the brain, somehow I still know that this is going on, and not obviously via the five senses.

In his discussion of actuality, Kant stresses that we do not need direct

experience of an object for it to be actual or existent, so long as we have some experience from which the existence of that object can be inferred. This involves examples such as something which cannot be seen by the naked eye (e.g. magnetic force) whose existence can be inferred from other perceptual experiences (the attraction of iron filings).

The postulate bearing on the cognition of things as *actual* does not, indeed, demand immediate *perception* (and, therefore, sensation of which we are conscious) of the object whose existence is to be cognized. What we do, however, require is the connection of the object with some actual perception, in accordance with the analogies of experience, which define all real connection in an experience in general.

In the *mere* concept of a thing no mark of its existence is to be found. [...] that the concept precedes the perception signifies the concept's mere possibility; the perception which supplies the content to the concept is the sole mark of actuality. We can also, however, cognize the existence of the thing prior to its perception and, consequently, comparatively speaking, in an *a priori* manner, if only it be bound up with certain perceptions, in accordance with the principles of their empirical connection (the analogies) [...]. Thus from the perception of the attracted iron filings we cognize the existence of a magnetic matter pervading all bodies, although the constitution of our organs cuts us off from all immediate perception of this medium [...]. Our cognition of the existence of things reaches, then, only so far as perception and its advance according to empirical laws can extend. (A225-6/B272-3)

One important consequence would seem to be that we cannot know the existence of some thing completely *a priori*, as is argued for further in relation to arguments for the existence of God. For a thing to be actual it requires some connection with the matter of *experience*, either through being experienced directly, or via a suitable connection to something else which is experienced. So to know if a thing exists, one must take into account the matter of experience, and not simply universal, *a priori* conditions on experience. One might not be worried about God, but mathematicians might want to hold onto the idea that they can learn *a priori* about the existence of entities such as numbers. However, recall that these purported mathematical entities are thought to exist, not only actually, but necessarily. Perhaps there is room to learn of the existence of a thing *a priori* in the special case where it also exists necessarily. I will discuss Kant's views on necessary existence and mathematical and abstract objects below.

The demand for *some* perceptual connection to an object for it to be actual—be it direct or indirect—might be thought to raise problems. Is it

realistic to expect there to be enough direct perceptual experience of things to account for all the actual things there are? And what if there were no creatures capable of perception? In response to the first worry, recall that, in cases without direct perceptual experience of the object, actuality is assured by ‘the connection of the object with some actual perception, in accordance with the analogies of experience’ (A225/B272). In brief, the analogies of experience comprise principles which are supposed to capture different necessary connections between perceptions. As expanding on the categories of relation, these principles will therefore be included in the conditions of possible experience.

The principle of the analogies is: Experience is possible only through the representation of a necessary connection of perceptions. (B218)<sup>15</sup>

The principles are:

1. In all change of appearances substance is permanent; its quantum in nature is neither increased or diminished. (B224)
2. All alterations take place in conformity with the law of the connection of cause and effect. (B232)
3. All substances, in so far as they can be perceived to coexist in space, are in thoroughgoing reciprocity. (B256)

These principles can be taken to correspond loosely to more familiar principles of physics, i.e. laws of conservation, laws regarding sufficient causation, and action and reaction. One way to frame the worry here is to ask: in the case of a single actual perception of an object, call it *a*, is it reasonable to suppose that there are other “actual” objects which bear no such relations to *a*, however remotely? Could there, e.g., exist an isolated causal system with no causal connection whatsoever to objects outside of that system? I suspect that physics tends towards answering *no*. Hence, as long as there is some direct perceptual experience, this should be connected to all actual things.

The more pressing worry seems to come from considering how things would be if there were *no* actual perceptions of objects. Would nothing then actually exist? Surely to think so would be to adhere to an unpopular kind of idealism. However, the worry can be defused by stressing that there is a difference here between *actuality* and *existence*. Actuality is considered to be a modal category, a concept that comprises part of the conditions on there being experience at all, the application conditions of which make

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<sup>15</sup>The statement of the principle of the analogies, and the analogies themselves, is different in the A-version, but I only need a brief overview of the analogies here, so I won’t concern myself with the differences between the two versions.



clear reference to minded creatures: '[the modal categories] only express the relation of the concept to the faculty of cognition' (A219/B266). In a world which contained no minded creatures (of the appropriate kind), one might think that there would be no possibility, actuality or necessity (see section 4.3.4). But even if this were the case, it does not follow that there would be nothing at all.

Kant takes the concept of existence to be different to that of actuality.

One cannot hereby equate the concept of actuality with the concept of existence, for the existence of a thing comprehends in itself the possibility as well as the actuality, as the necessity of an object, whereby existence is predicated of all three, but actuality of actuality (*actualitas*) alone. (Kant, 1794–5, 29:987)

Kant's statement that the two notions are different is clear, even if the reasons which follow are rather less so. The idea seems to be that the notion of existence is involved in all three other notions, but that the notion of actuality is only involved actuality. Put simply, if to be *possible*, *actual* or *necessary*, is to *possibly exist*, *actually exist* or *necessarily exist*, then one can see clearly that *existence* occurs as a "part" of each of the three modal concepts, but that *actuality* occurs as a "part" only of one. Hence, they are different. Kant may have something more complicated in mind by his obscure phrasing, but I think this way of putting things at least provides a gloss in the spirit of the point.

One can also see that the accounts Kant gives of each notion differ. In saying 'There is a donkey', or 'A donkey exists', the concept of a donkey is "posited" as having an object. We have seen that in saying 'A donkey is actual' reference is made to sensation and experience. Compare

If, now, we take the subject (God) with all its predicates . . . and say 'God is', or 'There is a God', we attach no new predicate to the concept of God, but only *posit it as being an object in relation to my concept*. (A599/B627, my emphasis)

with

. . . the *perception* which supplies the content to the concept is the sole mark of actuality. (A225/B273, my emphasis)

As long as there were still objects in some sense, we might be confident that things still exist in a mindless world, but they might not count as *actually* existing. This might sound strange, but it may be taken to be a peculiarity of Kant's view of modal categories. When applied to possibility and necessity, it does not seem so strange, i.e. to think that facts about how things could be or how things must be are not a properly objective feature of the world, but connected to how creatures like us experience the world and the interests we might have.

### 4.2.3 Necessity

*That which in its connection with the actual is determined in accordance with universal conditions of experience, is (that is, exists as) necessary.*

The third postulate is concerned not with logical or formal necessity, but with “material necessity in existence”. This is in line with the emerging trend to distinguish between logical modality, i.e. a matter of lack of contradiction amongst concepts, and the kind of modality that involves, in addition, a relation to (i.e. determination by) the universal conditions of experience.

Lastly, as regards the third postulate, it concerns material necessity in existence, and not merely formal and logical necessity in the connection of concepts. Since the existence of any object of the senses cannot be cognized completely *a priori*, but only comparatively *a priori*, relatively to some other previously given existence; and since, even so, we can then arrive only at such an existence as must somewhere be contained in the context of the experience, of which the given perception is a part, the necessity of existence can never be cognized from concepts, but always only from connection with that which is perceived, in accordance with universal laws of experience. (A226-7/B279)

There is an important clarification to be made here. One might think, given the account of possibility, that necessity of an object would be a mere matter of following from the laws of experience. But this turns out to be relative to some other previously given experience. So rather than an object being necessary when its existence (or something’s falling under the concept of the object) follows from the universal conditions of experience, it is necessary when it follows from a given experience *plus* the universal conditions of experience. Note again that this conditional necessity is restricted to the domain of objects of experience. Again, this guards against being able to argue for the necessary existence of a transcendent God, but may also cause problems for an account of mathematical and abstract objects.

An initial problem is how to distinguish these conditional necessities from those indirectly-experienced actualities inferred from directly-experienced actualities and the laws of experience, e.g. magnetic force as inferred from the behaviour of iron filings. Doesn’t this make either magnetic force (*qua* indirectly-perceived actuality) conditionally necessary, or conditional necessities merely actual? In response, one might say that certain events or entities can be conditionally necessary, whilst being ultimately or unconditionally merely actual. E.g., one might say, given the behaviour of the iron filings, there *must* be a magnetic force present. However, to say that does

not mean the same as saying that *there must exist magnetic force, full stop*. The particular instance of magnetic force here actually exists. It might not have existed, but given the existence of certain other things, it could not have failed to. Understood this way, a close relationship between actuality and conditional necessity does not seem so troubling.

Another response would be to take the necessary connection involved in actuality to be *epistemic*, as opposed to physical or metaphysical necessity in the conditioned necessity case. So, e.g., the iron filings constitute *evidence* of magnetic force, but something else may have *caused* (i.e. causally necessitated) there to be a magnetic force. However, this approach would spell disaster for actuality. Things could only actually exist if there was actually perceived evidence for their existence. Again, this strikes me as overly idealist, even for Kant. This reading is suggested by the iron filings example. After all, no one wants to argue that the movement of the iron filings in any way *necessitates* the existence of a magnetic force. A clarification may help here: the view is not that the object of actual perception is always the *cause* or equivalent of the actual existence of an indirectly perceived thing. Rather, the object of the perception is taken to stand *in some appropriate relation to* the other object. E.g., we know the iron filings could not move without a cause. Science tells us that that cause is a magnetic force. So we conclude from the movement of the iron filings that there is an actual magnetic force. So yes, the actual perception is used as evidence for the conclusion that there is a magnetic force, but the crucial relation which ensures the actuality of the magnetic force is not that the iron filings provide evidence for the magnetic force (although they do), but that the laws of experience state that the filings and the force will be related in a certain way.

The notion of necessity we are left with is then explicated by Kant in terms of causal necessity. We know that this material necessity is connected to the universal laws of experience. In the present passage, this amounts to what appear to be three laws of physics.<sup>16</sup> For Kant, certain physical principles are *a priori*, and these are amongst the conditions to which the concept of an object must conform if it is to refer to a possible object. An object has (conditional) necessary existence if it follows from a previous experience according to these laws of physics. But it is a mistake to talk here of necessarily existing objects. An important point is that Kant does not think that there could be such a thing as a necessary existent or a necessarily existing being. He indeed goes on to claim that this kind of conditional, causal necessity only regards the states of things, not the existence of things.

Now there is no existence that can be cognized as necessary under the condition of other given appearances, save the existence of effects from given causes, in accordance with laws of causality. It

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<sup>16</sup>See *The Analogies of Experience*, as discussed in section 4.2.2

is not, therefore, the existence of things (substances) that we can cognize to be necessary, but only the existence of their state; and this necessity of the existence of their state we can cognize only from other states, which are given in perception, in accordance with empirical laws of causality. (A227/B279)

The reason seems to be that we are dealing with causal necessity, a relation between causes and effects, so we must be dealing with states. This will depend on a claim about the *relata* of the causation relation; objects or states.

A restriction here to causal necessity seems misguided. First, the laws of mathematics as well as the laws of physics, according to Kant, guide the behaviour of objects in the world. So it seems reasonable to expect these conditional necessities to follow from mathematical as well as causal laws. It seems plausible to claim that nothing exists absolutely necessarily where this is a case of causal necessity, but once we have a richer notion of necessity in the picture, this may not be so straightforward. One might argue that the number 2 exists of mathematical necessity, and unconditionally so. Given the scope and importance of these issues to do with conditional necessity and abstract objects, I will discuss them in more depth once the main views have been outlined.

The relation between necessity and possible experience is brought out in the following way. Necessity is a matter of causal relations, and the causal law is an *a priori* condition on possible experience. So necessity is thereby a matter of determination by causal laws, which are a condition on experience.

It therefore follows that the criterion of necessity lies solely in the law of possible experience, the law that everything which happens is determined *a priori* through its cause in the [field of] appearance. We thus cognize the necessity only of those effects in nature the causes of which are given to us, and the character of necessity in existence extends no further than the field of possible experience, and even in this field is not applicable to the existence of things as substances, since substances can never be viewed as empirical effects—that is, as happening and coming to be. Necessity concerns only the relations of appearances in conformity with the dynamical law of causality and the possibility grounded upon it of inferring *a priori* from a given existence (a cause) to another existence (the effect). (A227-8/B279-80)

Again, the notion of necessity is restricted to the realm of experience, against the temptation to posit the existence of transcendent necessary beings such as God.

In terms of giving a clear exposition of Kant, the third principle of modality concerning necessity is really intended by Kant to capture a notion of

conditional, causal necessity. However, below I show how a more general notion of necessity, mirroring the account of possibility (which is not restricted to causal possibility) can be taken from Kant, which yields a simpler view.

### 4.3 The Main Theses

From the general outline of the view a number of claims can now be extracted and examined in greater depth.

1. *The Real/Logical Predicate Thesis*

Modal concepts/properties are not first-level concepts/properties of objects. Kant repeatedly makes the negative claim that modal concepts do not add to the determination of an object, do not enrich the concept of an object. This is closely related to his argument that existence is not a predicate, and his distinction between real and logical predicates.

2. *The Relative Modality Thesis*

The positive claim that Kant makes is that modal concepts pertain to the relation between the concept of a thing and conditions on possible experience, namely compatibility with those conditions as possibility, and determination by those conditions as necessity. This can best be cashed-out in terms of relativization of logical possibility and necessity to a set of conditions, i.e. as being a version of RM.

3. *The Category Thesis*

Modal concepts are categories. They form part of the conceptual prerequisite for experience. This is the key source which has led to the development of what are commonly called “Kantian” theories of modality.

4. *The Mind-Dependence Thesis*

Modality is mind-dependent. Modal facts, such as that an object possibly exists, are dependent for their existence upon the existence of creatures capable of experience similar to ours.

In the following I will work through a number of issues regarding Kant’s account, clarifying the above theses, and pointing out some potential problems.

#### 4.3.1 Real and Logical Predicates

Kant is adamant that the modal concepts at issue—possibility, actuality and necessity of things—do not add to the concept of the thing.

The categories of modality have the peculiarity that, in determining an object, they do not in the least enlarge the concept to which they are attached as predicates. [...] Even when the concept of a thing is quite complete, I can still enquire whether this object is merely possible or is also actual, or if actual, whether it is not also necessary. No additional determinations are thereby thought in the object itself [...] (A219/B266)

For the predicates of possibility, actuality, and necessity do not in the least enlarge the concept of which they are affirmed, adding something to the representation of the object. (A233/B286)

The idea is that although we can use modal predicates, e.g. as in “This object is possible”, we do not thereby attribute a(n intrinsic) property to the object.

Kant offers in the quotation above an argument for this negative claim: The concept of an object may be fully determined, but we can still ask whether the object be possible, actual or necessary. The idea is that, even if I could exhaustively determine every property of an object, it would still make sense to ask whether the object possibly exists, actually exists or necessarily exists. And the answer to that question would not be a foregone conclusion.

This line of thought is developed further in Kant’s well-known comments concerning existence in his argument against the ontological argument for the existence of God, summed up by the slogan “existence is not a predicate”. Kant does not deny the uncontroversial claim that the verb ‘to exist’ can appear grammatically as a predicate in a statement. In his terminology, he allows that ‘existence’ can form a *logical predicate*. But it is quite another thing to allow that something can be what he calls a *real predicate*. A real or determining predicate ‘determines a thing’; it is ‘a predicate which is added to the concept of the subject and enlarges it’ (A598/B626). ‘Existence’ is not a real predicate because predicating existence of an object does not add any further determination of the object; it does not determine any new properties of the object. As Kant says, ‘A hundred real thalers do not contain the least coin more than a hundred possible thalers’ (A599/B627). We cannot explain why the concept of existence does not add to the concept of a hundred thalers by claiming that it is analytic that a hundred thalers exist, because that is clearly false. So Kant concludes that existence cannot be a real predicate. The slogan should be “existence is not a real predicate”.

This kind of argument is particularly effective as an attack on Leibniz. Leibniz thought (i) that God is in possession of complete concepts of all possible things; (ii) that existence is a real predicate; and (iii) that God has the power to choose which possible things to make actual. Now, consider:

Take any subject you please, for example, Julius Caesar. Draw

up a list of all the predicates which may be thought to belong to him, not excepting those of space and time. You will quickly see that he can either exist with all these determinations, or not exist at all. The Being who gave existence to the world and to our hero within that world could know every single one of these predicates without exception, and yet still be able to regard him as a merely possible thing which, in the absence of that Being's decision to create him, would not exist. (Kant, 1763, 1979, p. 57(2:72))

Take Julius Caesar. God must be in possession of his complete concept, i.e. know all of the determinations of Julius Caesar, all of the real predicates which belong to him. If existence is a real (determining) predicate, then the complete concept of Julius Caesar will include whether or not he exists (suppose the concept includes *existence*). But God is supposed to be able to choose whether or not Julius Caesar exists. However, if God elects *not* to make Julius Caesar actually exist, this will not be possible. *Julius Caesar*, has as a determining property that he exists. Whatever it is that God has not chosen to make existent, it is not *Julius Caesar*, but something very similar. So Leibniz's position is inconsistent.

Kant is pointing to an inconsistency here between Leibniz's theory of complete concepts and his views on existence. Leibniz holds that existence is a perfection, or a positive simple predicate, and that since God contains all perfections he must likewise contain existence. Kant recognizes that this conception of existence is inconsistent with the Leibnizian position that God is in possession of complete concepts of possible things. If the concept of a possible thing is indeed complete, then whatever it is that is effected by God's choice to actualize that thing, it cannot be the case that any new predicates are added to this concept, since it is already complete. Thus, to say that a thing, *x*, exists cannot be, as Leibniz seems to indicate, to say that the predicate of existence is included in the concept of *x*. (Fisher and Watkins, 1998, p. 377)

Fisher and Watkins (1998) also bring out another point. If existence were part of the complete concept of a thing, we would not be able to use the same concept when talking about the same object being actual or possible. Consider, you and I are debating whether Homer existed. We both agree that such a person *could* exist, and we have made sure that we have the same concept of a thing in mind. Only I think such a person actually existed, whereas you think no such person existed (rather, a group of several people were responsible for "his" works). It seems we cannot even make sense of this being a genuine disagreement without allowing that you and I share our

concept of Homer, but disagree regarding his existence, which must therefore be something that would not feature in this concept. Moreover, Fisher and Watkins point out that we standardly take things which exist to be possible as well as actual. But this couldn't be done if the concepts were different.

Kant argues that existence is not a predicate. Thus, the complete concept of a thing is still indeterminate as to whether or not it applies to an actual or a merely possible thing. If this is the case, no amount of analysis of the concept will justify the claim that the object to which this concept refers is an actual object. If existence were a predicate and the complete concept of an actual thing contained existence, then we could not refer to a thing as possible and as actual by means of the same concept. Such a consequence is of course unacceptable, since we consider actual things to be possible as well. Thus, existence cannot be a predicate if the complete concept theory is to be maintained. (Fisher and Watkins, 1998, pp. 377–8)

In short, although not uncontroversial, Kant's view that existence is not a real predicate seems to be standing on fairly plausible ground.

Kant appears to describe two ways that a predicate can fail to be a real predicate. First, a predicate might still convey some useful information, e.g. however we treat statements such as “*a* exists” or “*a* is possible”, we seem to be saying *something* substantial. Second, Kant discusses cases where a predicate is merely logical in virtue of occurring in a certain way in an analytic truth—where the predicate attached to the subject is already contained in the subject, as in “This bachelor is unmarried” or “Socrates is Socrates”. This second kind of logical predicate is logical only relative to whether it is part of an analytic sentence. E.g., “is unmarried” can serve as a real predicate in “Socrates is unmarried”, although it serves as a logical predicate in “Every bachelor is unmarried”.

Anything we please can be made to serve as a logical predicate; the subject can even be predicated of itself [...] But a *determining* [real] predicate is a predicate which is added to the concept of the subject and enlarges it. (A598/B626)

The first kind of logical (non-real) predicate (such as “exists”) does not appear to be relative in this way. They do not fail to determine anything about the object because the information is already contained in the subject term, rather they fail to determine anything about the properties of the object because they convey a different kind of information. We do not want to claim that “Socrates is possible” or “Kant exists” are analytic. Kant rather claims that these predicates behave in a special way.

Kant's distinction between real and logical predicates seems therefore to be rather piecemeal. What we in fact have is a distinction between



predicates that do and do not determine properties of an object, relative to the content of the subject term used, and a third kind of predicate which can never determine properties of an object because it is not the right kind of predicate to do that. In other words, there is a logical/real contrast between predicates as used in analytic or non-analytic contexts, and a distinction between predicates which are and are not first-level predicates. A *first-level predicate* is a predicate which can combine with singular terms to form a sentence, e.g. “is red”: likewise a *first-level property* can be instantiated by individual objects, e.g. *redness*. The notion of a first-level predicate or property might help us to capture what Kant wants to say modal concepts are not when he argues that they are not real predicates.

Frege distinguished between first-level predicates such as “is red” and second-level predicates such as “exists” or “are three in number”. A second-level predicate applies to other predicates (a second-level concept<sup>17</sup> is a function which takes other concepts as arguments). E.g. “Socrates exists” should be understood as being of the form “ $\exists x(x = \text{Socrates})$ ”, or more roughly, “There is something which is identical with Socrates”, effectively making “Socrates exists” to be a case of the first-level concept *x is identical with Socrates* (note the variable place for an individual) falling under the second-level concept *there is something which is X* (note the variable place for a first-level concept).

This kind of division, between first- and second-level predicates, would appear to serve Kant well. His account of modal concepts is put in terms of the concepts of things, e.g. the concept of a thing being compatible with the formal conditions on experience. So perhaps it is correct to say that he holds a view whereby modal concepts, including existence, are applied to other concepts. Note that the precise formulation in terms of an individual concept such as  $x = \text{Socrates}$  will not be appropriate, given Kant’s views on individual concepts (see section 4.1.3). But taking, e.g., the complete concept of Socrates, represented by the predicate “ $Sx$ ”, the same treatment can be given for existence, i.e. “Socrates exists” will be translated as being of the form “ $\exists xSx$ ”, i.e. “There is something which falls under the complete concept of Socrates”. I consider whether this is genuinely the correct characterization, of modal predicates as being second-level, below in section 4.3.2. Although it seems right to say that for Kant modal predicates are not first-level predicates, it is not clear whether they are therefore second-level predicates instead.

There is a long history of arguments both for and against *existence* being a first-level property of objects. One can take Hume to be in the “against” camp when he argues that there is no difference between the idea of a thing and the idea of that thing existing.

To reflect on any thing simply, and to reflect on it as existent,

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<sup>17</sup>i.e. the referent of a predicate or concept-word

are nothing different from each other. That idea, when conjoin'd with the idea of any object, makes no addition to it. (Hume, 1739, 1740, 1.2.6)

This seems plausible: if I ask you to imagine a cabbage, and then I ask you to imagine an existing cabbage, surely you will have the same image of a cabbage in your mind's eye in both cases. Hume concludes that every idea of a thing is an idea of an existing thing; existence is already built into the idea of any thing, it cannot be attributed as an additional property.

Whatever we conceive, we conceive to be existent. Any idea we please to form is the idea of a being; and the idea of a being is any idea we please to form. (Hume, 1739, 1740, 1.2.6)

From here, we can ask: what is the difference between the case where there is an object corresponding to the idea (an existing object) and the case where there is none? It can't be that there are two objects, one with the property of existence and one without, because all my ideas are of existing objects—it is only existing objects that correspond to my ideas. So we have to find another account.

As well as the negative point, Kant's criticism of the ontological argument contains a suggestion of how to understand what these (non-analytic) logical predicates might do if they cannot enrich the subject-concept, i.e. if they cannot be used to predicate qualities of an object. First, Kant writes:

If, now, we take the subject (God) with all its predicates (among which is omnipotence), and say 'God is', or 'There is a God', we attach no new predicate to the concept of God, but only *posit it as being an object that stands in relation to my concept.* (A599/B627, my emphasis)

Rather than claiming that God has some property or other, enlarging the concept of God, we can say that we claim that there is an object relating to the concept, i.e. we claim that there is such a thing as God (in the case of existence). "God exists" becomes "There is an object falling under the concept of God", which looks happily like the Fregean formulation of a second-level concept, i.e. " $\exists x \text{God}(x)$ ".

### 4.3.2 The Relative Modality Thesis

Appended to the negative claim that modal predicates are not real predicates, is the positive claim that they instead indicate some relation between the concept of the thing in question and conditions on possible experience. Looking again at the particular explications of each modal concept in the *Postulates*, an account of possibility and necessity as relative to a set of propositions or laws can be seen to be emerging. The account as presented

by Kant focuses on the modality of objects, in terms of a relation between the concept of the object and a certain class of propositions. These propositions express conditions on the possibility of experience arising or deriving from the pure concepts of the understanding and the pure form of intuitions (or, with Strawson (1966), those features essential to an intelligible notion of experience).

Let us call the set of these conditions  $C$ . I suggested above that statements involving modal predicates such as “ $a$  is possible” should be understood as claims of the form “possibly  $a$  exists”, and then in terms of the concept of  $a$ ,  $Ax$ , i.e. “possibly  $\exists xAx$ ”. Recall, a thing is supposed to be possible when it (its concept) is in agreement with  $C$ , and necessary when its actuality (the actual instantiation of its concept) is determined by  $C$ . So we have:

$a$  possibly exists  $\equiv \langle \exists xAx \rangle$  is compatible with  $C$ .

and

$a$  necessarily exists  $\equiv \langle \exists xAx \rangle$  is determined by  $C$ .

How should we understand the relations of compatibility and determination here? Surely not causally: the conditions on possible experience do not *cause* anything to exist (such as a state of something). The simplest and most straightforward option would be to understand them as logical compatibility and logical determination (i.e. logical consequence). The only other option, as far as I can see, would be something like “metaphysical entailment” (“metaphysical compatibility”), the kind of determination relation one might think holds between, e.g., something’s being red all over and something’s not being green anywhere—a relation which goes beyond physics, but which is not obviously conceptual or logical. However, this kind of relation seems to be based precisely on notions such as real possibility and real necessity, e.g. it might not be a conceptual truth that nothing can be red and green all over, but perhaps this is ruled out of possible experience by some other means. Hence, I think the only way to go is to understand compatibility and determination in logical terms.

More formally, then, we have:

$a$  possibly exists  $\equiv \neg \Box(C \rightarrow \neg \exists xAx)$

$a$  necessarily exists  $\equiv \Box(C \rightarrow \exists xAx)$

We saw before that this formulation has certain logical problems. The solution adopted was to include a quantifier in the formulation. The kind of possibility and necessity Kant is concerned with here is premised on there being certain conditions on experience of the relevant kind. If this background claim is included in the formulation, then we can take another step towards showing that Kant’s modal categories constitute an instance of RM.

$a$  possibly exists  $\equiv \neg\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \neg\exists xAx))$   
 $a$  necessarily exists  $\equiv \exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \exists xAx))$

where “ $C\varphi$ ” is to be read as “ $\varphi$  is a conjunction of formal conditions on experience”. It is unfortunate that Kant restricts himself to existence statements. There is no obvious block here to extending the account to different form propositions to cover different modal claims, i.e.

It is possible that  $p \equiv \neg\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$   
 It is necessary that  $p \equiv \exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow p))$

One might worry that this kind of modality is supposed to be modality of *things*, so we should retain a restriction at least to singular propositions containing proper names of things. However, it is not the proposition which is possible or necessary that distinguishes the modality of things from the modality of the “form of thought”, but the fact that the former is relative to possible experience and conditions on it.

For if [the categories of modality] are not to have a purely logical significance, analytically expressing the form of *thought*, but are to refer to the possibility, actuality, or necessity of *things*, they must concern possible experience and its synthetic unity, in which alone objects of knowledge can be given. (A219/B267)

So it seems that anything can relate to the “modality of things”, so long as it is a matter of a relation to conditions on possible experience.

Kant’s views are more complicated when it comes to necessity. I have presented a formulation of necessary existence as follows.

$a$  necessarily exists  $\equiv \exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \exists xAx))$

The notion of necessary existence here is not a bad one—it doesn’t seem to be incoherent or out of keeping with the general postulate for necessity. It is just that, according to Kant, nothing can ever satisfy that condition. Why not? Here is one plausible rationale, based on other claims that Kant makes. The formal conditions on experience are all general in form, e.g., some might be:

- (C1)  $\forall x(x \text{ is a unity} \vee x \text{ is a plurality} \vee x \text{ is a totality})$   
*(From the categories of quantity)*
- (C2)  $\forall x(x \text{ is outer} \supset x \text{ is in space})$   
*(From the forms of intuition)*

If all these conditions are general in form, one cannot yield a theorem that is particular in form, and in particular one will not be able to yield theorems of the form that there exists something that is thus and so. Only by adding ancillary particular premises will a particular conclusion be derived. And

this is what Kant suggests: something can exist necessarily only on a prior condition of something else existing. One might reply, in classical logic it is assumed that at least one thing exists, so we are allowed to instantiate from universally quantified statements. Even so, via such a method we would only be able to yield the most basic of necessary existence claims, such as

Necessarily, there is an object.

Necessarily, there is something which is either a unity, a plurality or a totality.

And perhaps even reifications of *a priori* features such as

Necessarily, space exists.

It seems that Kant has the resources to mount a principled defence of his insistence that most (if not all) necessary existence is conditional. I discuss the consequences of this for mathematical and abstract objects below (section 4.5).

How can Kant's conditional necessities be clearly formulated? One might take it to simply be a case of conjoining the relevant extra existence proposition with the conjunction of conditions, i.e.

$s_2$  necessarily exists, conditional upon the existence of  $s_1 \equiv$   
 $\exists\varphi(C\varphi \ \& \ \Box((\varphi \ \& \ \exists xS_1x) \rightarrow \exists xS_2x))$

where  $S_1x$  and  $S_2x$  are predicates expressing the concepts of the states  $s_1$  and  $s_2$  respectively. One potential problem with this is it looks like the existence of the condition state  $s_1$  will itself turn out to be necessary, after all, the following will be trivially true as well.

$\exists\varphi(C\varphi \ \& \ \Box((\varphi \ \& \ \exists xS_1x) \rightarrow \exists xS_1x))$

However, this does not make  $s_1$  necessary relative to the conditions of possible experience taken alone, but relative to those conditions *plus the existence of  $s_1$* . So  $s_1$  only exists necessarily in the sense that it follows from the fact that  $s_1$  exists that  $s_1$  exists.

The problem remains that, given that Kant seems to have *causal* necessity in mind (A227/B279), this doesn't capture the difference in causal status between  $s_1$  and  $s_2$ .  $s_2$  may be necessary conditional upon  $s_1$  in the sense that  $s_2$  is *caused by*  $s_1$ , but the conditional necessity of  $s_1$  is not that it is self-caused. How might the necessary connection between cause and effect be properly captured? Perhaps there are certain principles allowing us to discern what can and cannot be a cause or an effect. One such principle might be that a cause must occur before its effect, or in other words, if the existence of a state is the cause of the existence of another state, then the former must exist before the latter. Finally, suppose that we can introduce temporal parameters into the state-existence propositions. Now,

take a state-existence proposition of the form  $\exists_t x S_1 x$  (there is a state  $s_1$  existing at time  $t$ ), which is going to be our cause. Suppose that the causal laws included in the set of conditions of possible experience together with this proposition entail, amongst other things, the following state-existence proposition:  $\exists_{t+n} x S_2 x$  (there is a state  $s_2$  existing at time  $t + n$ ). Looking at the temporal parameters, we can see that this second state occurs later than the other state, and so it may be that the first counts as a cause of the second.<sup>18</sup> Although the set of conditions along with the cause-proposition entail other necessities, such as the cause-proposition itself, principles of causality such as the one suggested above will allow us to discern which of these *conditional* necessities are *causal* necessities. In particular, given our cause-proposition premise, we will be able to pick out our effect-proposition as being causally necessitated, whereas the cause-proposition is merely trivially conditionally necessitated by itself. This is only a brief sketch, but it is at least a suggestion of how to reconcile Kant's comments about causal necessity here with what is looking to be a fairly coherent view of relative necessity. (In developing Kant's ideas further, one might prefer to treat causal necessity as a kind of physical necessity, and separate it from real necessity.)

Formulated in these relative terms, this view takes us further away from thinking about modality in terms of predicates, let alone first-level predicates. We started with a modal concept which applied to objects, and we seem to have ended up with a condition on a proposition. I started with something of the form

$a$  is possible

and suggested that this be understood as

$a$  possibly exists

which I have treated as a modal operator applying to an existence proposition, i.e.

It is possible that  $a$  exists.

Considering my interest here is in the modal part, this could be any proposition, i.e.

It is possible that  $p$

The relative modality formulation is indeed a complex condition which concerns a proposition.

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<sup>18</sup>I say, it *may* be a cause of the second, because I am not assuming that temporal succession is sufficient for a causal connection, but only taking it to be an example of a necessary condition.

$$\neg\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$$

The modal concepts no longer look like predicates at all (see section 4.3.1), but rather sentence-operators. What looked like a second-level modal predicate has been treated by extracting the modal element, and positing a relation between the completed predication (the proposition) and some conditions, i.e. the proposition that something falls under the concept  $F$  is logically compatible with formal conditions of experience. This seems to be the best way to clearly formulate the idea suggested by Kant when he writes of the concept of a thing being compatible with or determined by conditions on possible experience.

This conclusion should not be alarming. First, it explains why there is such a wide gulf between the other categories and the modal categories. Kant's modal categories are not determining predicates because they are not, in their most basic logical form, predicates at all, properly expressed as sentence-operators rather than predicate letters.

What is perhaps misleading is not only Kant's presentation in terms of concepts and predicates, but also his announcement that this is the modality of *things*. One might expect, then, that an account of *de re* modality was going to be directly presented, the contrast being with modality of judgments (from the Table of Judgments) as an account of *de dicto* modality. In fact, this gets things all wrong. Kant's account of the modality of judgments has little to do with alethic modality, and is rather an account of properties that token judgments have in virtue of their position in a course of reasoning.<sup>19</sup> The contrast of the modality of things is made against merely logical modality.

For if [the principles of modality] are not to have a purely logical significance, analytically expressing the form of *thought*, but are to refer to the possibility, actuality, or necessity of *things*, they must concern possible experience. (A219/B267)

As I noted above, the kind of modality discussed in the *Postulates* has to do with conditions on possible experience. This is contrasted with logical modality. In short, logical possibility is only concerned with non-contradictoriness, however, for a thing to be really possible the concept of the thing must not only be non-contradictory, but that something falls under that concept must be compatible with extra conditions, i.e. conditions on possible experience. If it were not, it could not be part of the empirical world. This does not introduce a *de re/de dicto* distinction. It introduces a distinction between logical and real modality. Doesn't this leave us wanting for an account of *de re* metaphysical modality as well as *de dicto*? I will consider this issue in section 5.3.2.

<sup>19</sup>See section 4.1.1 and Leech (forthcoming).

One might worry that there is some incongruity in the emerging account, given the arguments for existence being a second-level predicate; the related arguments that modal concepts, including existence, are not first-level predicates; and the conclusion that modal concepts are properly expressed as sentence-operators, not predicates at all. First, the negative claim can be taken as the same for the modal concepts and existence alike, namely, that they are not first-level predicates. Second, one can avoid an uncomfortable incongruity by distinguishing between *existence* and *actuality*. I noted above (section 4.2.2) that Kant himself distinguishes between the two. I also suggested that we should understand Kant’s modal adjectives, such as “is possible”, in terms of existence, i.e. “possibly exists”. Recall, Kant claims that the notion of existence is complicit in the three main modal concepts. Because the modal concepts *possibility*, *actuality* and *necessity* are cashed out as *possible existence*, *actual existence* and *necessary existence*, *actuality* and *existence* cannot be the same concept: the latter is a proper part of the former.<sup>20</sup> This allows us to retain the second-level predicate view of “exists”, whilst giving a different treatment of “actually”. “Exists” can be a second-level predicate, as in “ $\exists xCx$ ”, whilst “actually” can indicate a condition on these kinds of existence statements, expressed by a sentence-operator, as in “ $@(\exists xCx)$ ”. (The meaning of the operator “@” would then be given by something like: actually  $p$  if, and only if,  $p$  is “bound up with the material conditions of experience”.)

Finally, further evidence in favour of this relative modality interpretation of Kant can be taken from the following, written around 1782/3, between the two editions of the *Critique*.

Physical possibility is that which does not conflict with the laws of experience; this one can easily comprehend, e.g., that a large palace could be built in four weeks is physically impossible. Morally possible is that which is possible according to the rules of morals, and does not conflict with the general law of freedom. (Kant, 1782–3, 29:812)

Here Kant can be seen to be applying a relative modality view to different kinds of modality, according to the base class of propositions to which they are relative. E.g., moral possibility is that which is compatible with propositions expressing the “rules of morals”. He also gives further examples of things which are possible or impossible according to taking different conditions or “hypotheses” into account.

E.g. it is possible that a human being should arrive at vast riches, but due to laziness, unsuitability, and a lack of wealthy

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<sup>20</sup>Here I am leaning on the containment metaphor. One might otherwise say: if *actuality* in fact means *actual existence*, then *actuality* analytically entails *existence*. However, the argument goes, the reverse entailment does not hold, i.e. from *existence* to *actuality*. So the concepts must be distinct.



relatives it is impossible. Something can be possible in itself, while hypothetically, under either its logical or real hypothesis, it is impossible. (Kant, 1782–3, 29:813)

In this section I have tried to show that Kant’s expansion on the modal categories in the *Postulates* can be naturally and plausibly read as a particular kind of relative modality view. Moreover, there is evidence in Kant’s *Lectures on Metaphysics* that he held a relative modality view more generally. With a relative modality framework in place, the next major step is to examine what kind of relative modality Kant is describing, and the distinguishing features of the class of propositions to which it is relative. The next few sections should begin to cast some light on this issue.

### 4.3.3 The Categories and “Kantian Modality”

So far I have focused on what Kant has to say about each particular modal concept, and brought out an account in terms of propositions being compatible with or a consequence of conditions on possible experience. Alternative approaches to understanding Kant on modality focus on his account of concepts, and in particular pure concepts of the understanding, i.e. categories. In this section I consider how one might understand Kant’s notion of a category, and the kinds of conclusions that have been drawn from the thesis that modal concepts are categories. Finally, I assess how this understanding of “Kantian Modality” can be best integrated with the relative account that has emerged so far.

The categories are concepts that must be applied in experience in order for us to experience the world as we do. These concepts are not acquired from experience, but are prerequisites for experience. Kant thus also calls them *a priori* concepts, as opposed to empirical concepts. Kant is also famous for his *transcendental idealism*. One way to understand transcendental idealism is as the thesis that humans (and similarly-minded creatures) can only have experience of appearances, and not of things-in-themselves. Our minds are such that there are certain *a priori* constraints on how we experience things. Appearances are shaped by these constraints, e.g., space and time are forms imposed upon the world by us. The world we experience, the empirical world investigated by science, is a world of appearances. Transcendental idealism is contrasted with *transcendental realism*, the view that we can experience things-in-themselves directly.

Philosophers often get nervous when transcendental idealism is mentioned. Lots of difficult questions concerning the nature of appearances and things-in-themselves, and how we are to interpret such a distinction, are inevitably raised. But it is wrong to think that in order to profit from some of Kant’s ideas, we are always required to pay the admission price of defending transcendental idealism. For a start, that would involve a potentially endless

digression, and we wouldn't make any progress on other, potentially more fruitful, aspects of Kant's work. What I want to do, as far as possible, is to set transcendental idealism to one side, and focus on some of the aspects of Kant's view that are more obviously related to what he has to say about modal concepts. The modal concepts are taken by Kant to be categories, so one such aspect of Kant's view to be considered is the notion of a category, and how that can be made sense of independently of an obvious commitment to transcendental idealism.

One may wish to hold on to the idea that certain concepts or features are somehow fundamental to human experience, or *a priori* in some sense, without having to be a full-blown transcendental idealist. Strawson has offered an alternative to the "transcendental idealist interpretation" of *a priori* concepts, the "austere interpretation".

In the first, or austere, interpretation a concept or feature (element) could be called *a priori* if it was an essential structural element in any conception of experience which we could make intelligible to ourselves. In the second, or transcendental idealist, interpretation to call an element *a priori* was to claim that its presence as a feature of experience was attributable entirely to the nature of our cognitive constitution and not at all to the nature of those things, as they are in themselves, which affect that constitution to yield experience. (Strawson, 1966, p. 68)

Concepts can be understood as *a priori* by making reference to conceptions of experience. This is in contrast to an interpretation which relies on making reference to cognitive constitution and to "things-in-themselves". The former interpretation thus avoids both having to make specific psychological claims about our cognitive make-up, and having to engage in speculative metaphysics concerning these odd "things-in-themselves", and what role they might play in determining various aspects of our experience.

To show that a concept or feature was *a priori* in Strawson's austere sense would involve having to show that this concept or feature was indeed essential to any intelligible conception of experience. In *The Bounds of Sense*, Strawson lists what he thinks are the main theses Kant puts forward regarding essential features of experience, i.e. 'what the limiting features must be of any notion of experience which we can make intelligible to ourselves' (1966, p. 24).

1. *The temporality thesis*: experience essentially exhibits temporal succession.
2. *The thesis of the necessary unity of consciousness*: there must be such unity among the members of some temporally extended series of experiences as is required for the possibility of self-consciousness, or

self-ascription of experiences, on the part of a subject of such experiences.

3. *The thesis of objectivity*: experience must include awareness of objects which are distinguishable from experiences of them in the sense that judgments about these objects are judgments about what is the case irrespective of the actual occurrence of particular subjective experiences of them.
4. *The spatiality thesis*: the objects referred to in (3) are essentially spatial.
5. *The thesis of spatio-temporal unity*: there must be one unified (spatio-temporal) framework of empirical reality embracing all experience and its objects.
6. *The theses of the Analogies*: certain principles of permanence and causality must be satisfied in the physical or objective world of things in space. (See Strawson (1966, p. 24))

Each thesis is clearly a significant issue in its own right. E.g., issues concerning whether experience has to involve temporal succession, or whether temporal succession and extension in experience is a necessary condition for self-consciousness, have been widely discussed and form a significant topic for debate in their own right, with a rich philosophical history. (See Brentano (1913ff), Russell (1913), Stout (1930), and more recently, Kelly (2005a,b), Dainton (2000) and many others.) It can be seen that to engage with even one of these theses is a significant task, let alone all of them.

Strawson goes on to assess which, if any, of these theses can be upheld, and the kinds of arguments required. Someone wanting to uphold the thesis that modal concepts are categories might follow Strawson's lead. One version of a Kantian account of modality might claim that any notion of experience which we can make intelligible to ourselves will include modal elements and argue accordingly. I will not pursue this in detail here, but will offer a brief suggestion of ways to argue for this kind of claim.

Keeping closely in line with Kant, one might argue that our application of modal concepts to experience is required for and embodies that unity of consciousness which makes any experience possible at all.

In the Deduction we find a repeated insistence that a certain connectedness and unity among our experiences is necessary to constitute them experiences of an objective and law-governed world; that the concepts of the object which we apply in experience embody the rules of such unity; and that this rule-governed connexion of experiences under concepts of the objective is precisely what is required for the necessary unity of consciousness,

i.e. for the possibility of self-consciousness. (Strawson, 1966, pp. 26–7)

There are two ways one might try to develop the idea that modal concepts are categories in this way, i.e. that modal concepts are required to contribute to the unity of experience. First, one might argue that “things being modal” or “things being modally related” is a necessary feature of a unified world of experience, this being achieved by our applying modal concepts to the world. Take causation: perhaps the idea that events are causally related is a necessary one for any unity in experience, otherwise we could not link different experienced events in an orderly manner. Therefore, causation is an essential feature of experience, without which there would be no unity of experience, nor unity of consciousness. It is not clear how modal concepts such as real possibility and necessity could be argued to play this role.

An alternative way to develop this idea is to go deeper and argue that the rule-like nature of the concepts which embody this necessary unity is a modal matter, and so modality is built right into the foundations of conceptualized human experience, in the modal nature of concepts themselves. E.g., perhaps the concept of causation embodies the unity of experience, but possession of any concept at all, including the concept of causation, requires some ability to think modally. Brandom (2008) and Baldwin (2002) each have arguments for the view that concept-possession and our reasoning practices are inescapably modal. The conclusion is that modality is an inescapable feature of conceptual thought and inference. Combined with the assumption that concept-possession and/or reasoning practices are essential to human experience, these arguments can be used to mount an argument for modality being an inescapable feature of human experience. At least they purport to show that the cognitive resources required for the making of modal judgments, or the possession of modal concepts, are requirements for any kind of concept possession at all.

The arguments from Brandom and Baldwin are rather similar, and both take Kant to be their source. Brandom discusses what he calls “the modal Kant-Sellars thesis”, comprised of two claims:

1. In using ordinary empirical vocabulary, one already knows how to do everything one needs to know how to do in order to introduce and deploy *modal* vocabulary.
2. The expressive role characteristic of alethic modal vocabulary is to *make explicit* semantic, conceptual connections and commitments that are already *implicit* in the use of ordinary empirical vocabulary. (Brandom, 2008, p. 102)

Brandom argues for the view that the practices and abilities which underlie the ability to deploy alethic modal vocabulary are practices and abilities

which are required to underlie the deployment of any empirical vocabulary at all. This is because the ability to understand the vocabulary (possess the requisite concepts) requires the ability to assess the robustness of material inferences in counterfactual situations involving those concepts, which in turn requires the ability to think counterfactually, i.e. modally. E.g.,

One grasps the claim “the lioness is hungry” only insofar as one takes it to have various consequences (which *would* be true if it *were* true) and rule out some others (which *would not* be true if it *were* true). And it is not intelligible that one should endorse as materially good an inference involving it, such as the inference from “the lioness is hungry” to “nearby prey animals visible to and accessible by the lioness are in danger of being eaten,” but be disposed to make no distinction at all between collateral premises that would, and those that would not, if true in firm the inference. One must make *some* distinction such as that the inference would still go through if the lioness were standing two inches to the East of her actual position, the day happened to be a Tuesday, or a small tree ten miles away cast its shadow over a beetle, but not if she were shot with a tranquilizing dart, the temperature instantly plummeted 300 degrees, or a plane crashed, crushing her. The claim is not that one could not fail to assess some or even all of *these particular* counterfactuals correctly and still count as grasping the claim that is their premise, but that one could not so qualify if one made *no* such distinctions. (Brandom, 2008, p. 105)

In other words, properly understanding a concept or a piece of vocabulary involves some grasp of the consequences of difference scenarios for instances of the concept. That grasp of consequences involves the ability to reason counterfactually. And the ability to reason counterfactually, or the practice of reasoning counterfactually, is sufficient to account for the introduction of modal vocabulary. This accounts for part 1 of the modal Kant-Sellars thesis, and presents one way to understand modal concepts as being an essential element of experience: any possession and use of concepts (any use of empirical vocabulary) relies on a prior grasp of modal concepts (vocabulary). Part 2 of the thesis goes on to claim that modal vocabulary is *expressive*, rather than descriptive.

Baldwin makes a similar claim, that possession of a concept requires the ability to apply it in possible as well as actual situations. This is cashed-out in terms of an ability to reason from the supposition that a certain concept applies in a possible situation.

I start from Kant’s thesis that concepts are rules for the understanding whose application to experience requires that they

be also applicable by the imagination (A124–6). For this suggests that the ability to apply a concept correctly to observed actual situations requires the capacity to apply it in the course of deliberation concerning possible situations as well, and thus that there is an intrinsically modal aspect to the possession and use of concepts. But all this needs more elucidation. Concepts, on this account, are not simply capacities to respond accurately to types of observed phenomena by registering their presence. Their role in framing desires and intentions already shows an ability to apply them to what is thought of as nonactual. . . .

Yet although non-actuality is an ingredient of mere possibility, not everything non-actual is possible and more needs to be said to fill out the role of modality in characterising concept possession. We get closer to this, I think, by considering what is characteristic of the ability to understand what it would be for something to be both F and G. For the obvious account is that it involves an ability to reason concerning the implications, both positive and negative, of the hypothesis that something is both F and G, where the ability to identify these implications does not require knowledge of whether or not they actually obtain. This suggestion connects concept-possession with a capacity for reasoning, and this is, I think, the fundamental aspect of the matter. (Baldwin, 2002, pp. 9–10)

Like Brandom, Baldwin claims that modal abilities and practices inherent in reasoning underlie concept possession. Part of understanding a concept is being able to reason concerning the consequences for instances of the concept in different scenarios, and the interaction of the concept with others in such scenarios. This reasoning is where modality enters in. Insofar as we are conceptual creatures, these arguments purport to show that modality is an inescapable feature of our conceptual lives. We have a way to understand Kant’s notion of a modal category: a practice or ability necessary for any concept possession at all, which can be expressed in terms of further concepts (modal concepts).

The conclusion that modal concepts are (or the ability to think modally is) a prerequisite for conceptual thought and experience is all very well, but it does not yet say much about the nature of modality. Perhaps there are genuine, objective, mind-independent modal properties of things, perhaps even concrete, spatiotemporally and causally-isolated possible worlds, constituting modality in reality, and by happy coincidence our ability to possess and use concepts is underpinned by an ability to possess and use modal concepts which capture this aspect of reality. The second part of Brandom’s modal Kant-Sellars thesis claims that the role of modal vocabulary is to “make explicit” semantic and conceptual commitments and connections in

our use of ordinary empirical vocabulary, not to describe how things are modally in the world. Similarly, Baldwin develops his view by arguing that modal judgments are expressive of our norms of reasoning, which are the modal notions underlying our use of concepts. He notes that if modal judgments were just *reports* of modal connections between concepts, this would hardly be an improvement on an account where modal judgments are taken to be reports of modal connections between properties and objects.

For on this view,<sup>21</sup> concepts come, like atoms, with an intrinsic modal ‘valency’ that enables them to join up with other concepts in the molecular patterns that our ordinary modal judgments capture. This would be a realist account of the matter; and the objection to it is that it seems not much less mysterious than the accounts of modality propounded by those who rely on Aristotelian essences or merely possible worlds. All that the conceptualist move has achieved is that the grounds for unease have been shifted by locating primitive modality at the level of sense (concepts) rather than at the level of reference (properties, worlds); but this does not remove the unease. (Baldwin, 2002, p. 12)

The idea is that such modal connections are no less mysterious for being between concepts rather than objects, but if we take modal judgments (i.e. judgments with apparent modal content) to be *expressions* (rather than descriptions) of our norms of reasoning with concepts, then we have an explanation of the source of our modal commitments and judgments, without having to explain these mysterious, objective, modal relations between things.

... the anti-realist ... holds that modal judgment is the expression of norms inherent in the capacity that we have to reason from our thoughts which is essential to our capacity to have thoughts at all. (Baldwin, 2002, p. 13)

E.g., the anti-realist might take a judgment that *necessarily, all bachelors are unmarried*, to be an expression of norms inherent in the capacity to reason using the concepts *bachelor* and *unmarried*, norms which are essential to our capacity to have thoughts using these concepts at all.

To discuss the pros and cons of such a view is too great a task for present purposes. The pertinent question here is how far this view is an accurate reflection of Kant’s view of modality, and whether these considerations are helpful in developing a viable version of Kant’s view. First, if I make a statement of the form “*x* possibly exists”, then according to the view I have

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<sup>21</sup>In the course of reasoning we are guided by our grasp of the internal relations between the concepts involved.

attributed to Kant, this conveys the information that the proposition that  $x$  exists is compatible with the formal conditions on experience. It does not appear to be merely expressive of this, but in fact has that content, with clearly defined truth-conditions, i.e. the compatibility or not of that proposition with those.<sup>22</sup> So an expressivist account does not immediately seem appropriate. However, any relative account of modality of this kind faces a challenge to give an account of logical necessity. If a Baldwin-style account of modality were to have any bite, it is likely that it would have to be here, at the level of logical necessity. After all, Kant owes us an account of the notions of compatibility and determination which underlie his account of the modality of things. If I am right to read these as logical compatibility and determination, then an account of these notions will be required.

Another consideration is that relative accounts of modality owe an explanation of the status of the propositions in the base class, from which relative necessities follow. One can take any set of propositions and find out what is logically necessary relative to them, but this does not explain why we take some classes of propositions to be especially important and interesting, e.g. those propositions from which all the natural necessities follow, or those from which all the metaphysical necessities follow. In a Kantian framework, one can perhaps use the idea that there are categories to address this concern. In the case of Kant's real modality, the modality of things, the special status of the conditions from which the real necessities follow is that they are derived from the categories. These conditions describe the prerequisites for having any experience of an objective world at all. E.g., all objects must be causally efficacious, of a particular magnitude, and so on. What makes the base class of propositions to which real necessity is relative special is that they lay out, in the form of conditions or laws, those features that are essential to experience.

Recall, the modal categories are different to the other three groups. Whereas the categories of quantity, quality and relation are supposed to directly comprise conceptual prerequisites for experience, i.e. universal conditions on experience, the modal categories concern a relation to the universal conditions on experience. So, if the modal categories are also conceptual prerequisites for experience, this means, roughly speaking, that an essential prerequisite for experience is that we have the conceptual resources to assess concepts of things against the universal conditions on experience. Not only are there constraints on what we can experience, such as causal connection and so on, but there is also a requirement that we be able to reflect upon those constraints, e.g. consider the concept of a causally-isolated object against the background of conditions on experience. Strawson has described the task of the first *Critique* as being 'the investigation of that limiting framework of ideas and principles the use and application of which

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<sup>22</sup>Depending on whether logical modality is given an expressivist treatment.



are essential to empirical knowledge, and which are implicit in any coherent conception of experience which we can form' (1966, p. 18). Perhaps another principle to be added to Strawson's suggested list (shown above) of the main theses might be called "the thesis of transcendental reflection". So long as one takes there to be essential features of any intelligible conception of experience, one should think that one such feature is the ability to reflect on this very fact, that there are such features, and their consequences for what can, must, and could never be a part of our experience as a result.

Kant's relative account of real modality has most opportunity to become "Kantian" when we consider what to make of the propositions to which it is relative. The particular account of the real modal concepts is a relative one, where they are logical necessities relative to a set of base propositions. A peculiarly Kantian flavour is added by the details of the account of the status and source of these base propositions, in terms of universal conditions on possible experience. A Kantian account of logical necessity—the necessity to which real necessity is relative—would further bolster this "Kantian" flavour. In Chapter 3 I developed and defended a broadly Kantian view of logical necessity. In Chapter 5 I will develop the idea of a base class of propositions expressing something like conditions on possible experience as underlying an account of the contemporary notion of metaphysical modality as relative.

This may be an apt point to consider an objection to this kind of Kantian view. This account has to take seriously the idea of *a priori* concepts, and has to give an account of these. The standard transcendental idealist account in terms of the nature of our cognitive faculties is open to an objection made by Russell.

Our nature is as much a fact of the existing world as anything, and there can be no certainty that it will remain constant. It might happen, if Kant is right, that to-morrow our nature would so change as to make two and two become five. (Russell, 1912, p. 49)

If the categories depend upon our cognitive make-up, and our cognitive make-up is an inconstant matter, then any account of possibility and necessity grounded in our cognitive make-up will make possibility and necessity themselves inconstant. In particular, a worrying case is that, given that Kant takes mathematics to be synthetic, mathematical propositions may turn out to be contingent, in the sense that they may change over time. This would be unacceptable.

The moral to take from Russell's worry is to take care in giving an account of the categories and the base class of propositions from which the metaphysical and mathematical necessities follow. If one chooses to ground this base class in an account of something like the categories, then this worry will have to be considered. In giving an account of the conceptual

prerequisites for having any experience of an objective world one must ensure that these prerequisites are not tied too closely to contingent human features.

In short, other philosophers have taken Kantian modality to concern modal prerequisites involved in concept possession, where modal statements are thereby expressive, rather than descriptive. This is in contrast to the relative modality view I have attributed to Kant. However, one can draw on the same ideas, concerning the idea of categories or essential features of any intelligible conception of experience, to give a peculiarly Kantian flavour to a relative modality view.

#### 4.3.4 Mind-Dependence

A so-called “Kantian” account of modality is often billed as treating modality as mind-dependent in some sense. Mind-dependence is traditionally understood in modal terms, i.e. a phenomenon, object, property or fact etc. is said to be mind-dependent just when there is no possible world in which crucial aspects of our mental lives are different, and the phenomenon, object, property or fact still exists (it is not possible for these mental aspects to be different and the phenomenon etc. still to exist). Similarly, mind-independence is a case of the phenomenon existing in a world where crucial aspects of our mental lives are different (it is possible for these mental aspects to vary and the phenomenon still to exist).<sup>23</sup>

Baldwin (2002) introduces his broadly Kantian approach as a middle way between Aristotelian and Humean approaches (having already dismissed a Lewisian approach).

As in ethics we can, I think, distinguish three further types of position: a broadly Aristotelian position that speaks of the essences of kinds of substance: a position that develops Kant’s view that modal concepts are categories, *a priori* concepts of the understanding, whose warrant lies in the fact that they enter into the constitution of any possible conceptual scheme that provides for objective truth: and a Humean ‘projectivist’ view of necessity, as an expression of the irresistibility of certain judgments, or of the fact that we find their denial unimaginable. (2002, p. 7)

Of the alternatives to full-blooded realism, the Kantian position appears, to me at least, *prima facie* the most attractive. For it offers the prospect of an account which does not treat modality as a primitive feature of reality, in the way that an appeal to Aristotelian essences appears to, while equally avoiding the subjectivism of Humean projectivism. (2002, p. 9)

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<sup>23</sup>Jenkins (2005) contrasts this standard modal definition with a notion of *essential* dependence.

The Humean will take modality to be a projection of certain attitudes, analogous perhaps to the property of *being funny*. To be funny just is to make people laugh. Likewise, to be necessary just is to engender certain responses, e.g. for it to be difficult to imagine the contrary. Although a Kantian view is not based on subjective responses in this way, it still seems to rely on the subject insofar as the account relies on notions which appear to involve minds, such as *experience* or *concepts*.

If any kind of modality is going to count as mind-dependent, this is not part of the structure of RM. Recall the general structure of the view:

$$\begin{aligned} \text{It is } R\text{-necessary that } p: & \quad \exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p)) \\ \text{It is } R\text{-possible that } p: & \quad \neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p)) \end{aligned}$$

Looking at this, how might a kind of relative modality be mind-dependent? First, one might consider the case where the condition  $\Psi\varphi$  picks out a set of mind-dependent truths. So being  $R$ -necessary would be mind-dependent when the truths to which it is relative are mind-dependent. The absence of minds would prevent the existential condition from being fulfilled. So nothing could be  $R$ -necessary. However, this would not obviously render  $R$ -possibility mind-dependent. After all, there being no such conjunction of propositions is one way in which  $\langle p \rangle$  can turn out to be possible: there is nothing to rule out  $\langle p \rangle$ .

Another way for relative modalities to be mind-dependent would be if the modality to which they are relative—logical modality—were mind-dependent. In Chapter 3 I argued that one can give an account of logical necessity which is compatible with RM in terms of laws of thought. Surely thought and thinking are mind-dependent phenomena if anything is, so perhaps one should also take the laws which govern thought to be mind-dependent, insofar as they govern a mind-dependent phenomenon. In this case, logical modality would turn out to be mind-dependent. And then, any kind of modality which is a mere relative form of logical modality would also be rendered mind-dependent.

However, things are not quite so straightforward. For a start, it is not clear whether the existence of laws governing a phenomenon depends upon the existence of that phenomenon. E.g., if no motor vehicles existed, would the law that one should drive on the left in the UK also not exist, or would it just be useless? Consider also general statements concerning non-existent things, e.g., that all unicorns have a horn. Such statements are usually taken to be trivially true. But then, general statements do not need to rely on the existence of whatever they describe for their truth. Likewise, if there were no thinking creatures, there might still be general truths concerning thinking, which might be called “laws of thought”. Indeed, one might argue that in order for it to be true that there is no thinking going on, the criterion by which something counts as thinking or not is required to exist. Otherwise

there might be no fact of the matter.

Both kinds of strategy for introducing mind-dependence—mind-dependent conditions or a mind-dependent account of logical necessity—turn on the idea that the existence of relevant constraints, norms or laws will be ontologically dependent upon the existence of creatures capable of experience or conceptual thought. Another way to reject this general move would be to hold that things such as concepts, norms and laws are abstract, and therefore eternally and necessarily existent. The existence of suitably-minded creatures is presumably not even true throughout actual history, let alone necessarily.

It looks like the mind-dependence claim is going to be difficult to maintain. After all, even if there were no minds like ours, one might think that from a God's eye view it is still true that such and such conditions on possible experience like ours have certain logical consequence and compatibility relations to other propositions. However, there are reasons to think that Kant wouldn't agree: even if a proposition  $p$  were logically compatible with conditions on possible experience, this would mean nothing to a mind different to ours, and *especially* to a mind like God's. Kant frequently makes a distinction between a discursive understanding—an understanding like ours which requires input from sensible intuition in addition to concepts to be combined into cognition—and an intuitive understanding, which enjoys the benefits of “intellectual intuition”. An intuitive intellect would merely need to think of something for it to exist, whereas our discursive understanding requires input from sensible intuition.

Now, consider, if to think of something is immediately for it to exist, what sense would it make for such an understanding to think of a thing as merely possible? Not a lot. By contrast, a distinction between possibility and actuality is written in to the fundamental structure of the discursive intellect, in the gap between the mere concept of a thing, which is possible, and confirmation of the actual existence of a thing given through sensible intuition.<sup>24</sup> In the *Critique of Judgment* Kant writes

Human understanding cannot avoid the necessity of drawing a distinction between the possibility and the actuality of things. The reason for this lies in our own selves and the nature of our cognitive faculties. For were it not that two entirely heterogeneous factors, the understanding for concepts and sensuous intuition for the corresponding objects, are required for the exercise of these faculties, there would be no distinction between the possible and the actual. This means that if our understanding were intuitive it would have no objects but such as are actual. Concepts, which are merely directly to the possibility of an object,

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<sup>24</sup>Thank you to Bob Stern for drawing my attention to this line of thought across Kant's works.

and sensuous intuitions, which give us something and yet do not thereby let us cognize it as an object, would both cease to exist. Now the whole distinction which we draw between the merely possible and the actual rests upon the fact that possibility signifies the position of the representation of the thing relative to our concept, and, in general, to our capacity of thinking, whereas actuality signifies the positing of the thing in its intrinsic existence apart from this concept. Accordingly the distinction of possible from actual things is one that is merely valid subjectively for human understanding. (Kant, 1790, 401–2)

An understanding into whose mode of cognition this distinction did not enter would express itself by saying: All objects that I know *are*, that is, exist; and the possibility of some that did not exist, in other words, their contingency supposing them to exist, and, therefore, the necessity that would be placed in contradistinction to this contingency, would never enter into the imagination of such a being. (Kant, 1790, 403)

Note that Kant takes the cognate notion of necessity to be insignificant to the intuitive understanding along with any notion of possibility or contingency.

The idea of concepts which are important for our lives as lived through a discursive understanding and yet irrelevant to the intuitive intellect occurs across Kant's work. In the *Critique of Pure Reason*, he stresses that the categories would be “meaningless” for the intuitive understanding.

For were I to think an understanding which is itself intuitive (as, for example, a divine understanding which should not represent to itself given objects, but through whose representation the objects should themselves be given or produced), the categories would have no meaning [*Bedeutung*] whatsoever in respect of such a mode of cognition. (Kant, 1781, 1787, B145)

(See also B308–9). The real modal concepts are themselves categories, so *a fortiori* these modal concepts will have no meaning for the intuitive understanding. This line of thought also extends to Kant's practical philosophy, in his claim that moral obligation and imperatives, as expressed by the moral ‘ought’, have no meaning for a holy will which will always do the right thing anyway.

A perfectly good will would, therefore, equally stand under objective laws (of the good), but it could not on this account be represented as *necessitated* to actions in conformity with law since of itself, by its subjective constitution, it can be determined only through the representation of the good. Hence no imperatives

hold for the *divine* will and in general for a *holy* will: the ‘ought’ is out of place here, because volition is of itself necessarily in accord with the law. Therefore imperatives are only formulae expressing the relation of objective laws of volition in general to the subjective imperfection of the will of this or that rational being, for example, of the human will. (Kant, 1797, 4:414)

For Kant, it makes no sense for a divine will to be *obliged* to do something that it will always do anyway. In contrast, our human will is often confused by desires which do not accord with the moral law, and so needs a sense of duty or obligation in order to guide us in making the right choices.

There are two main ways one might choose to read this line of thought. First, the notions of possibility and necessity are insignificant to the intuitive intellect in the sense of *not mattering to them*, even though they make sense. On this reading, God (with an intuitive understanding) might agree that it is really possible that *p* insofar as it is logically compatible with some other propositions, which relate the conditions on possible experience for a discursive intellect, even though he (or she) himself (herself) does not have any use for these notions, and even though they have no application to his (her) own experience. So a proposition could count as really possible, say, even if there existed no minds of the appropriate kind.

In contrast, the second reading takes these notions to be insignificant in the sense that they are *meaningless*, such that God wouldn’t even understand what it would be to be possible or necessary. On this reading, from the perspective of an intuitive understanding, it wouldn’t even make sense to classify something as possible—propositions containing modal concepts would be meaningless, not even false. In this case, it seems that possibility and necessity will be heavily dependent, not only on the *existence* of the appropriate kind of minds—those with a discursive understanding—but on the *perspective* from which a judgment is made, i.e. the modal concepts will only be meaningful at all as applied from the perspective of the discursive intellect. From the perspective of an intuitive intellect, there would be no (real) modality at all.

In brief, these aspects of Kant’s views suggest something more than mere mind-dependence for modal facts, in the form of some stronger, perspectival or relativist account. To explore the prospects of such a view would go beyond present purposes. At least, it is open in the interpretation of these passages to take ‘*bedeutung*’ to mean ‘significance’ in the weaker sense, rather than ‘meaning’ in a stronger sense, and so to make room for a less mysterious account of modality, meaningful across the board.

## 4.4 Real Modality and Logical Modality

Throughout Kant's work, a distinction between *real* and *logical* is made, including a distinction between real and logical possibility. The importance of this distinction is borne out in the strikingly different roles played by real modality and logical modality: the former is a mere relative form of the latter. This distinction is also interesting because it appears to be similar to the distinction made by many contemporary philosophers between logical and metaphysical modality. Although widely used, it is not always clear what these different kinds of modality are supposed to be. Kant's distinction, as we shall see, rests on the difference between considering interrelations between concepts, and the demands of applying and using concepts in an objective world. The distinction relates to the differences between *thinking* and *cognizing*.

### 4.4.1 Real and Logical Possibility

A first statement of this distinction is that a concept is logically possible just when it is non-contradictory, and a concept is really possible just when it is non-contradictory *and* consistent with the *a priori* constraints on experience. Another way to put things is that to be logically possible a concept (or a proposition) need only be non-contradictory, but in order to count as really possible it must also fulfil certain conditions such that it might be instantiated in experience.

*Logical* possibility, actuality, and necessity are cognized according to the principle of contradiction [...] Real possibility is the agreement with the conditions of a possible experience. (Kant, 1790–1?, 28:557)

So, e.g., whilst the concept of an uncaused event might not be strictly self-contradictory, there is a question whether such a thing could appear in the empirical world.

The distinction is brought out in this passage from the first *Critique*.

A concept is always possible if it is not self-contradictory. This is the logical criterion of possibility, and by it the object of the concept is distinguishable from the *nihil negativum*. But it may none the less be an empty concept, unless the objective reality of the synthesis through which the concept is generated has been specifically proved; and such proof, as we have shown above, rests on principles of possible experience, and not on the principle of analysis (the law of contradiction). This is a warning against arguing directly from the logical possibility of concepts to the real possibility of things. (A596/B624, footnote)

The *nihil negativum* is the kind of nothingness that is due to contradiction in a concept (as opposed, e.g., to nothingness due to a non-contradictory concept that has no corresponding object for other reasons) (A290–2/B346–9). So, logical possibility of a concept ensures that the concept will not be empty due to the contradictoriness of that concept. In order for the concept to be able to have a corresponding object in experience, and so to count as really possible, “the objective reality of the synthesis through which the concept is generated” must be proved. What does this mean? The concept must be applicable in experience (objectively real). The criterion of logical possibility arises from the principle of analysis, i.e. the principle of non-contradiction. In contrast, the synthesis of intuitions and concepts into a cognition, or an empirical experience, is subject to further conditions. This synthesis is the activity that is subject to the pure concepts of the understanding, i.e. the cognition must conform to universal conditions on possible experience. For real possibility we need to find out if the concept under consideration is compatible with the principles of possible experience as well as the law of non-contradiction, whether it is applicable in experience as well as non-contradictory.

Kant sees a connection between his distinction between analytic and synthetic judgment, and logical and real modality.

Possibility is nothing other than the agreement of a thing with conditions of thought. The conditions are analytic or synthetic; should it not agree with the former, then it is impossible on account of the principle of contradiction. But it must also agree with synthesis. The principle which contains the synthetic conditions of thought is provisionally this: all synthesis must contain the conditions under which the manifold is brought into a unity—or: to no thing can a synthetic predicate be attributed unless it is a possible experience. (Kant, 1782–3, 29:821–2)

Both logical and real possibility require compatibility with conditions of “thought”. However, logical possibility is concerned only with analytic principles. Real possibility must be compatible in addition with synthetic principles—conditions of cognition.

Kant also frames the distinction in terms of a distinction between the conditions for being able to *think* (*denken*) something, and the conditions for being able to *cognize* (*erkennen*) something.

To *cognize* an object I must be able to prove its possibility, either from its actuality as attested by experience, or *a priori* by means of reason. But I can *think* whatever I please, provided only that I do not contradict myself, that is, provided my concept is a possible thought. This suffices for the possibility of the concept, even though I may not be able to answer for there being, in



the sum of all possibilities, an object corresponding to it. But something more is required before I can ascribe to such a concept objective validity, that is, real possibility; the former possibility is merely logical. This something more need not, however, be sought in the theoretical sources of cognition; it may lie in those that are practical. (Bxxvi, footnote)

Note that Kant makes a reference to the fact that real possibility may have something to do with practical considerations. One way we might work out that an object is really possible is to take obligations as our guide, i.e. because ought implies can, the commitments of our obligations concerning what we ought to do will show us something about what is really possible.

Here logical possibility of the concept requires only a lack of contradiction. If we connect this to what we can think, one might worry that the implication here is that we cannot think thoughts about objects the concepts of which are self-contradictory. However, it seems plausible that I am able to think thoughts such as *that there are no round squares*. I understand what it would take for something to be a round square—it would be both round and square—and I understand that roundness and squareness are contradictory properties, so I conclude that there are none, and even that there could not be any. Given that we can perfectly well think about logically impossible things in this kind of way, one might take Kant to mean something more like *cannot be imagined*. Indeed, I can't summon a mental picture of a round square, but then again I don't usually require myself to be able to summon mental pictures of things to consider them logically possible. E.g., I am prepared to accept that the truth of string theory is a logical possibility, but I am utterly incapable of summoning up any mental picture adequate to represent string theory. Another way to make sense of the view is to read "I can think whatever I please" as normative, i.e. thinking non-contradictory thoughts is permissible, but thinking contradictory content is in some sense *bad*. I discussed this approach in more detail in Chapter 3.

More depth can be added to the distinction by considering the following.

So long as the definition of possibility, existence, and necessity is sought solely in pure understanding, they cannot be explained save through an obvious tautology. For to substitute the logical possibility of the *concept* (namely, that the concept does not contradict itself) for the transcendental possibility of *things* (namely, that an object corresponds to the concept) can deceive and leave satisfied only the simple-minded.<sup>α</sup>

<sup>α</sup>In a word, if all sensible intuition, the only kind of intuition which we possess, is removed, not one of these concepts can in any fashion *verify* itself, so as to show its *real* possibility. Only *logical* possibility then remains, that is, that the concept or thought is possible. That, however, is not what we are discussing,

but whether the concept relates to an object and so signifies something. (A244/B302 & footnote)

The passage from the main text just reiterates the distinction with which we are already becoming familiar, and warns against conflating logical with real possibility. This is explicated in the footnote, which makes two illuminating points. First, the role of intuition in real possibility is highlighted. Intuition is required for a concept to “verify” itself, to show its real possibility. Second, it is implied that possibly having a corresponding object allows the concept to “signify something”; if a concept could never be exemplified in experience, it would therefore lack significance.

The role of intuition in the significance of concepts brings to mind one of Kant’s best known statements:

Thoughts without content are empty, intuitions without concepts are blind. (A51/B75)

The relevant point here is that in order for our thoughts (concepts) to have a genuine object, to count as thoughts *about* (concepts *of*) things rather than just thoughts (empty concepts), they must be supplemented with sensible intuition. Kant seems to have a very particular and strict notion of the conditions for a concept or a thought having intentional content—really being about something—as opposed to being somehow well-formed but empty or idle. So we can begin to understand the distinction at hand in different terms: logical possibility is a matter of the conditions a concept must fulfil in order to count as a well-formed concept; real possibility is a matter of the conditions a concept must fulfil in order to be “significant”, a matter of the application of concepts to an objective world.

In *Kant’s Dialectic*, Bennett draws out this feature of Kant’s view. In order to be meaningful, a concept must be able to (be used to) draw distinctions that are discernible in experience. If it did not, it is not clear what the purpose or significance of such a concept could be. This is then tied to intuitions: given that empirical experience requires a combination of concepts and intuitions, whether a concept draws any line through experience will require taking into account intuitions.

The thesis that concepts need intuitions is a form of concept-empiricism or meaning-empiricism. Kant holds that a statement’s meaning is a function of what it implies for actual and possible experience, and that a statement which has no such implications, no empirical cash value, means nothing. (Bennett, 1974, p. 27)

So, for a concept to be significant its use in a judgment must have empirical implications. Strawson has also noted this aspect of Kant’s view.

The employment of concepts in judgments involves essentially the thought of their possible application to objects—ultimately to objects not themselves concepts. The general conditions of the applicability of concepts to objects essentially involve the general conditions of our becoming aware of objects, i.e. involve our modes of intuition. Our mode of intuition is sensible and spatio-temporal. We are aware of objects, in experience, under the conditions of space and time. We cannot detach our concepts from these conditions of their application to objects and hope at the same time to preserve any significant employment for them in recording, or advancing, knowledge of objects. It is only in application to objects of possible experience that concepts have any such use. (Strawson, 1966, p. 263)

In Kant's view, then, the significance of a concept, conditions of its very applicability, its implications for possible experience and intuitions are all bound together. If a concept has no consequences for experience, if there is no difference between conditions under which the concept is or is not applicable, it lacks empirical application conditions, and hence has no significance. We may be assured of the applicability of a concept if we check it against "the general conditions of our becoming aware of objects", i.e. the pure forms of intuition and ultimately, also, the pure concepts of the understanding. The link with real possibility is clear: the same criteria of compatibility with *a priori* constraints on experience are required both for the real possibility, and for the significance, of a concept. It is one thing to dream up concepts of things and avoid bare logical or analytic contradiction in the concept. It is quite another to dream up a concept that could really do work in application to the world, and in making judgments about the world.

Once we are assured that the concept is compatible with possible experience, then, it is presumed, it must have implications for possible experience. E.g., the concept *red* is empirically significant because we can use it to draw a line through experience, i.e. between the red and non-red things. The concept *electron* is meaningful because it appears in empirically testable theories. The concepts *Elizabeth II* and *Sherlock Holmes* are significant because we should be able to discern corresponding objects in possible experience; although we can only actually discern the former, we would be able to recognize the latter if he were real (actual) rather than only merely possible. The concept *cause* is significant because we can, indeed *must*, discern causal relations between different objects and events. In contrast, the concept *uncaused event* may be empirically empty insofar as nothing in possible experience could count as a corresponding object. If Euclidean geometry is true of the empirical world, *figure bounded by two straight lines* will also be meaningless in this sense. Other, non-empty mathematical con-

cepts, although they rely only on pure intuition, should still be significant as the form of pure intuition is supposed to contribute to the conditions on possible experience.

What has become clear is that Kant's distinction between 'logical' and 'real' is a distinction between matters concerning thought and concepts taken in isolation, and matters concerning cognition, experience, and the application of concepts to the world. This distinction between the logical and the real extends to many other domains.

Aside from making a distinction between a logical and a real subject, between logical and real simplicity, logical and real identity, and logical and real possibility, he also distinguishes between logical and real essence, logical and real negation, a logical and a real reason (*Grund*), as well as logical and real necessity. The best known of these distinctions is that made between a logical and a real predicate in Kant's refutation of the ontological proof for the existence of God. (Rosefeldt, 2003, p. 146)

Sometimes Kant is interested in mere conceptual truths, or links between concepts. Sometimes, however, he is interested in features of objects, which for him involves taking much more into account, i.e. conditions on possible experience and intuitions as well as concepts.

#### 4.4.2 Logical Necessity

The real modalities can be understood in terms of the modality of things, as discussed above. Much trickier is the notion of logical necessity. One might expect logical necessity to be something like the following. Recall, a concept  $F$  is said to be logically possible just when  $F$  is not self-contradictory, where contradiction is to be understood in a broadly logical sense (logical contradictions such as *married and not married* as well as analytic falsehoods such as *married bachelor*). How do we get (broad) logical necessity from this? If we accept that necessity is the dual of possibility, then we can define it in terms of *not possibly not*. So a concept  $F$  would be logically necessary just when it is not the case that it is not self-contradictory that not- $F$ , i.e. the concept  $F$  is logically necessary when  $\neg F$  is self-contradictory. This is nicely in accord with some other formulations of logical necessity, e.g.,

What does it mean to say that there is a notion of logical necessity? I mean this: there is a sense of 'necessary' for which  $\lceil$ It is necessary that  $A \rceil$  implies and is implied by  $\lceil$ It is logically contradictory that not  $A \rceil$ . (Rumfitt, 2010, p. 35)

$\lceil$ It is logically contradictory that  $A \rceil$  is taken to mean that some overt contradiction follows logically from the supposition that  $A$ .<sup>25</sup>

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<sup>25</sup>One might take Kant to have something similar in mind when he writes: 'The reverse of that which as concept is contained and is thought in the knowledge of the object, is

The formulation of logical necessity here is promising, but faces the problem that Kant writes in terms of concepts, rather than in terms of something like propositions, which would be necessary for application of sentence operators and relation via implication. We might borrow the strategy used above, and simply substitute the concept for a proposition to the effect that something falls under the concept, i.e. “ $\exists xFx$ ”, then see whether this is contradictory or not. We will end up with a concept  $F$  being logically necessary just when the proposition that it is not the case that something falls under the concept  $F$  entails a contradiction.

$$F \text{ is logically necessary} \equiv \langle \neg \exists xFx \rangle \vDash \perp$$

The accompanying formulation of logical possibility as lack of contradiction would accordingly be:

$$F \text{ is logically possible} \equiv \langle \exists xFx \rangle \not\vDash \perp$$

Drawing on the notion of existence here might seem inappropriate, given that we are concerned with logical necessity. However, one can see that this is just a special case of Rumfitt’s formulation, where “ $A$ ” has been replaced by a more specific kind of proposition. As above, the account can be generalized to any proposition, i.e.

$$\begin{aligned} \text{It is logically necessary that } p &\equiv \langle \neg p \rangle \vDash \perp \\ \text{It is logically possible that } p &\equiv \langle p \rangle \not\vDash \perp \end{aligned}$$

This is all very well, but we cannot rely on this to give a satisfactory account of logical necessity. Logical necessities will conform to these rules—the negation of a logical necessity will always logically entail a contradiction—but these formulations themselves rely on a prior notion of logical necessity governing the notions of entailment, contradiction, and so on. A deeper explanation of these elements must be given if a proper account of logical modality is to be provided. Furthermore, the account of other kinds of modality as being relative to logical necessity also relies upon having an account of logical modality. In chapter 3 I discussed a broadly Kantian account of logical necessity. Kant adheres to a notion of logic which is concerned with the rules of thought.

The sphere of logic is quite precisely delimited; its sole concern is to give an exhaustive exposition and a strict proof of the formal rules of all thought. (Bix)

The account I explore takes logical necessity to find its source in logical laws, and the laws of logic to be constitutive norms for thought.

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always rightly denied. But since the opposite of the concept would contradict the object, the concept itself must necessarily be affirmed of it’ (A151/B190–1).

## 4.5 Abstract Objects and Mathematics

Kant's account of cognition appears to leave little room for the existence and cognition of abstract objects. Cognition of objects is supposed to be the result of the application of concepts to the input from the senses, sensible intuition. But if abstract objects are not objects of the empirical world, capable of impinging on our senses in this way, how can we fit them into Kant's view? A number of problems arise. For one, how can we account for the existence of mathematical (and other abstract) objects, let alone their necessary existence,<sup>26</sup> and *a priori* knowledge of their existence? Also, given Kant's doctrine of concept empiricism,<sup>27</sup> how can we accommodate the meaningfulness of mathematical concepts and their applicability to the world? These questions are pressing because a view of modality which excludes the existence of abstract and mathematical objects and the meaningfulness of mathematical concepts as a matter of course would appear to require the biting of some hefty bullets.

Kant did not neglect the philosophy of mathematics. Indeed, the advertised goal of the first *Critique* is to show how synthetic *a priori* knowledge is possible, of which there are two branches; philosophical knowledge and mathematical knowledge. Kant is known for a view of "construction" whereby our mathematical knowledge rests on the pure forms of intuition. Without spending too much time on details here, I will sketch some more or less Kantian suggestions of how one can address these issues.

First, *existence and necessary existence*: The former, according to Kant, requires something like "intuitability", the latter is rejected. There are several ways one could accommodate the necessary existence of mathematical and abstract objects into Kant's account, some more faithful to the original view than others.

First, one might keep the idea of abstract objects as genuinely existing in the world, and try to stretch the notion of the "intuitability" of existent objects. Such objects cannot be known via sensible intuition, but perhaps there is another kind of intuition by which we can know these kinds of objects. Kant claims that we gain mathematical knowledge from the pure form of intuition, i.e. the form we impose on sensible intuition. Perhaps introspection on this could give us access to knowledge of an abstract realm, but it is not clear how one could justify such a connection. This would also be to give up on Kant's stricture against necessary existents.

Second, I argued above that one can understand Kant's rejection of necessary existence as the idea that only general conclusions could follow from general principles of experience. One could therefore introduce necessarily

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<sup>26</sup>I am assuming that abstract objects, if they exist, exist necessarily. I am ignoring for the time being peculiar species of abstract object, such as Thomasson's abstract artifacts (Thomasson (1999)), which might count as contingent.

<sup>27</sup>See section 4.4.1.

existing (abstract) objects by claiming that conditions on experience can contain existential (particular) propositions as well. For current purposes, such principles would presumably be something like “There are numbers”. One would then have to do some work to show that the existence of, say, numbers, is an essential feature of any conception of experience (or similar). Kant does seem to include the concept of *number* in the categories: ‘... the concept of a *number* (which belongs to the category of totality)...’ (B111). One might therefore take Kant to think that the *concept* of number is essential to experience. But it would require further argument to show that the *existence of objects* falling under this concept is essential to experience.

Kantian philosophers of mathematics are often occupied in trying to give an account of Kant’s notion of construction. The rough idea is that mathematical concepts are supposed to be constructible in intuition. This has been understood in many different ways. Hintikka (1967) takes the lesson to be that we deal with general mathematical concepts through particular instances. We conduct proofs by taking particular representatives, such as particular triangles in geometry, or particular sequences of objects in arithmetic.

Kant’s characterization of mathematics as based on the use of constructions has to be taken to mean merely that, in mathematics, one is all the time introducing particular representatives of general concepts and carrying out arguments in terms of such particular representatives, arguments which cannot be carried out by the sole means of general concepts. (Hintikka, 1967, p. 24)

Can we always be assured that there will be particular things in the world to act as instances of mathematical concepts? At least in the case of arithmetic, Parsons answers:

The general point behind the observations on symbolic construction can be put in the following way: In general, a mathematical proposition can be verified only on the basis of a proof or calculation, which is itself, a construction in intuition. But in view of the remarks about ‘ $7 + 5 = 12$ ’, a more special fact may have influenced Kant. Certain “symbolic constructions” associated with propositions about number actually involve constructions isomorphic to the numbers themselves and their relations, or at least to an aspect of them. (Parsons, 1969, p. 66)

Mathematical symbols can act as particular representatives of mathematical concepts, ensuring that there will be instances of these concepts as long as we have a symbolic notation for them.

The key idea here appears to be that there exist representatives or instances of mathematical concepts and structures, without there having to

directly exist numbers and other mathematical objects. Indeed, Parsons writes

Kant never talks explicitly of the existence of mathematical objects; existence for him seems to be concrete existence; this is quite explicit in its schematization as actuality. He seems to decline to attribute existence to mathematical objects at all. [...] If we are not to import into Kant the “mathematical-objects picture”, then it seems we have to take the *range* of these variables to be *empirical* objects. Then a mathematical argument cannot, strictly speaking, establish existence. What plays the role of mathematical existence in Kant is constructibility. The most plausible reconstruction of Kant would be, in my view, to take constructibility of a concept to be a kind of possible existence of a (nonabstract) object falling under the concept. (Parsons, 1969, pp. 73–4)

This all looks rather like some kind of structuralism. However, this should not be understood as a view whereby there exists an abstract object which is *the number structure*, but rather as a view whereby mathematics relies upon the possibility of the existence of concrete objects exemplifying something like *the concept of the number structure*. Perhaps one might say that certain mathematical structure is an essential feature of any intelligible conception of experience. A similar story would have to be told for other, non-mathematical, abstract objects. When it comes to existential propositions about abstract objects, such as “The number 2 exists”, these might have to be given a paraphrase treatment to say something more like “It is possible for an object corresponding to *the node of the number 2 in the number structure* to exist.” This route does not give us full-blooded mathematical and abstract objects existing independently in some special realm, but it does at least show the way to accommodating mathematics in the view.

These considerations also contribute to answering the question whether mathematical and abstract objects can be considered as really possible. A concept is really possible if the existence of an empirical object falling under the concept is consistent with universal conditions on experience. But if an object were to fall under the concept of an abstract object, surely that would entail the existence of a necessary existent, going against Kant? Again, one must think in terms of instances of a structure. Rather than an abstract object which is the number 2 falling under the concept 2, one must think of concrete representatives falling under the concept, e.g., pairs of empirical objects, or numerals such as ‘2’ or ‘II’.

Next: *the significance of mathematical concepts*. Above I discussed Kant’s view that in order to be significant a concept must have empirical implications, or empirical “cash value” (see section 4.4.1). How, then,



can purported concepts of non-empirical objects be significant? First, the applicability of mathematical concepts to experience is supposed to be justified in virtue of their *a prioricity*. Recall, the applicability of empirical concepts is supposed to be justified in terms of either their acquisition from or possible recognition in experience, whereas the applicability of *a priori* concepts is supposed to be justified by reflection on the necessary conditions on and features of possible experience. As mathematical concepts are supposed to lie in the latter camp, we do not need to be able to intuit instances of them for them to be significant; we need only to show that they are *a priori* in the relevant sense. Second, one can also bring to bear considerations regarding Kant's theory of construction. The idea was that mathematical concepts are closely related to construction in intuition, which can be understood as meaning that instances of mathematical structures must be intuitable in experience. By this, mathematical concepts can have empirical implications, e.g., one might intuit certain number sequences exemplified in buttons, beads, or mathematical symbols. Again, this involves taking a particular view of mathematics, but nevertheless concept empiricism can accommodate meaningful mathematical concepts.

In short, Kant's theory of construction in mathematics allows us to account for the significance of mathematical concepts, and the existence of mathematical objects in the sense of there being exemplars of mathematical structure. Independent reasons for rejecting a Kantian philosophy of mathematics might drive one to make more radical changes to the view, such as including existential propositions in the conditions on possible experience, or having a less sense-dependent notion of intuition. Either way, there are prospects for avoiding the potential consequences for a Kantian relative modality view, that there are no mathematical objects in any sense, and that mathematical concepts are empty.

## Chapter 5

# Metaphysical Necessity: A Relative and Kantian Account

In Chapter 1 I argued that the non-logical alethic modalities should be treated as mere relative logical modality, and should be expressed in terms of the following schemata:

It is *R*-necessary that *p*:  $\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow p))$   
It is *R*-possible that *p*:  $\neg\exists\varphi(\Psi\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$

where “ $\Psi\varphi$ ” states something like “ $\langle\varphi\rangle$  is a conjunction satisfying condition  $\Psi$ ”. Metaphysical modality is one of the alethic modalities to be treated in this way. To give an account of metaphysical necessity and possibility, the schemata need to be fleshed-out as follows:

It is metaphysically necessary that *p*:  $\exists\varphi(M\varphi \ \& \ \Box(\varphi \rightarrow p))$   
It is metaphysically possible that *p*:  $\neg\exists\varphi(M\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$

This is not immediately illuminating (beyond making the claim that metaphysical necessity is relative). The main task at hand is not simply to present this formula, but to expand upon the condition “ $M\varphi$ ”: to say to which kind of propositions metaphysical modality is relative.

First, what is metaphysical necessity supposed to be? It would be helpful to know what we are aiming at when considering different relative accounts. The same question was asked of logical necessity before an account of its source was offered: logical necessity was taken to be whatever necessity ‘attaches to the claim, concerning a deductively valid argument, that if the premises are true then so is the conclusion’ (McFetridge, 1990, p. 136). Granting that there is such a kind of necessity, this is fairly uncontroversial as a way to pick out logical necessity; the controversy arises when we try to

give an account of its *source*. But what about metaphysical necessity?

Metaphysical necessity is often introduced informally in one of two ways: by giving examples of typical (purported) cases, or by describing metaphysical necessity as falling between two other more easily delineated kinds. Typical cases that are used in the first method tend to include Kripkean *a posteriori* necessities—identity statements involving rigid designators, e.g. ‘Hesperus is Phosphorus’; statements concerning the chemical composition of natural kinds, e.g. ‘Water is H<sub>2</sub>O’; statements of the essentiality of origin, e.g. ‘Elizabeth II is essentially the daughter of George VII’; and statements of the essentiality of composition, e.g. ‘Table T is essentially made of wood’<sup>1</sup>—as well as other claims about essence (e.g., ‘Socrates is essentially human’), mathematical truths and some metaphysical claims.<sup>2</sup> Having been presented with these cases, one is supposed to be able to get a rough idea of the terrain of metaphysical necessity. This method of introducing the idea of metaphysical necessity may be appropriate in some circumstances (e.g., at the beginning of a lecture course on the topic), but it will not be suitable for present purposes. Typical cases might be an important benchmark when it comes to assessing an account of metaphysical necessity—one might think that an account of metaphysical necessity will run into trouble if *no* typical cases end up counting as metaphysically necessary. However, taking metaphysical necessity to be *characterized by* an antecedently selected class of cases will prejudge certain issues. If we assume from the outset what will count as metaphysically necessary or not this will place unreasonably stringent constraints on an account of metaphysical necessity. Moreover, suppose that two different accounts of metaphysical necessity both yield the same class of cases—the typical cases—as metaphysically necessary. How are we to choose between them? We still require some more general principles to decide which account properly characterizes metaphysical necessity.

Another informal introduction is to describe metaphysical modality as falling between, e.g., logical modality and physical modality. E.g., starting with physical possibility, one might point out that it is physically impossible to travel from the Earth to the sun and back in 10 minutes, but that it seems possible in some other sense. If the laws of physics had been slightly different, then one could travel faster than light and get there and back in 10 minutes.<sup>3</sup>

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<sup>1</sup>See Kripke (1980).

<sup>2</sup>E.g., the Principle of Unrestricted Composition in mereology—that any things can combine to form a whole—might be thought to be metaphysically necessary if true (and metaphysically impossible if false). However, not all philosophers claim metaphysical necessity for their metaphysical views. A die-hard physicalist may still admit the possibility of dualism, if not the actuality.

<sup>3</sup>One would have to travel faster than the speed of light, but physics tells us that nothing can do so. Of course, it might have been that light travelled at a slower speed, such that it was possible to travel from the Earth to the sun and back in 10 minutes without overtaking light. What I have in mind is a possibility where the speed of light is the same as the actual world (i.e. 299792458 m/s), but one contravenes the laws of

But perhaps there is still a limit to this kind of modality. One might think that, even allowing for different laws of nature, there are some things that couldn't happen, even though they aren't a contradiction in terms. Perhaps intuitions pull us to think that the man Socrates could have been a woman, but that he couldn't have been a worm or an oak tree, even though there is nothing in the meaning of the name "Socrates" to explain this. So, we have the beginnings of a sketch of a space filled by truths which are physically impossible, but possible in some other sense, and that some truths are not possible in this other sense, whilst still being logically possible. This middle ground is taken to be the realm of metaphysical necessity. Again, this might be an appropriate way to get an initial sense of metaphysical necessity, but it prejudices certain issues that I wish to leave open. E.g., it is not clear that the relationship between different relative necessities, such as metaphysical and physical necessity, will be monotonic in this way. This will depend upon the relation between the kind of propositions to which metaphysical necessity is relative, and the kind of propositions to which other kinds of necessity, such as physical necessary, are relative. This neat monotonic relationship between logical, metaphysical and physical necessity will only occur (within the framework of RM) if the propositions to which physical necessity is relative include or entail the propositions to which metaphysical necessity is relative.<sup>4</sup> This is as yet an open question.

An "informal elucidation" of metaphysical necessity as the "strictest real necessity" is offered by Rosen (2006). This elucidation starts from generally agreed principles about metaphysical necessity. First, metaphysical necessity is *alethic* or *factive*: if it is metaphysically necessary that *p*, then it is true that *p*. But there are other alethic kinds of necessity, such as conceptual necessity. Second, then, metaphysical necessity sometimes applies to *substantive* truths.

Unlike the various logical and semantic species of necessity, metaphysically necessary propositions are sometimes *synthetic* and *a posteriori*. ... So if substantive truths of these sorts can be necessary in the metaphysical sense, metaphysical necessity differs from logical or conceptual necessity. (Rosen, 2006, p. 15)

This gives us a notion of *real* modality.

Let's call any modality that is alethic, non-epistemic, and sometimes substantive or synthetic a *real* modality. (Rosen, 2006, p. 16)

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physics by nevertheless travelling faster than that.

<sup>4</sup>Monotonicity requires that metaphysical necessity be strictly stronger than physical necessity, as well as strictly weaker than logical necessity. If all the physical necessity base propositions include or entail the metaphysical necessity base propositions, but not *vice versa* then any metaphysical necessity will also be a physical necessity, but not every physical necessity will be a metaphysical necessity.

Metaphysical modality is a real modality. But there are other kinds of real modality such as physical modality. So Rosen suggests that metaphysical is the strongest or “most absolute” real modality.

... the natural thing to say is that among the real modalities, the metaphysical modalities are *absolute* or *unrestricted*. Metaphysical necessity is the strictest real necessity and metaphysical possibility is the least restrictive sort of real possibility in the following sense: If  $P$  is metaphysically necessary, it is necessary in every real sense: If  $P$  is really possible in any sense, then its possible in the metaphysical sense. (Rosen, 2006, p. 16)

As a working notion of metaphysical necessity, ‘the strictest real necessity’ seems rather promising. This provides a good guide for what we expect from an account of metaphysical necessity—that it respect these key features. Note also that it is left open for metaphysical necessity to also be the strictest kind of necessity *tout court*, i.e. it might turn out that there is no stricter necessity than the strictest real necessity. This characterization therefore does not prejudge the disagreement between essentialists who take metaphysical necessity to be (richly) absolute, and others who take logical necessity to be (richly) absolute and metaphysical necessity to be merely relative and not (richly) absolute.

My proposed view takes logical necessity to be (richly) absolute, i.e. the strongest genuine necessity, and metaphysical necessity to be merely relative. I have not claimed that logical modality is “metaphysically significant”, in the sense that it tells us how the world can and must be. But I have tried to show that mere logical possibilities are not therefore to be dismissed as possibilities “in name only”. I have suggested that logical possibility and necessity are importantly connected to thinking and reasoning. As such, it does not seem right to dismiss mere logical possibilities as non-genuine: they are genuine possibilities, concerning the most basic laws of thought, even if they do not tell us about how the world can be. My view also takes metaphysical modality to be relative: it is based on Kant’s notion of real modality, which is a relative form of logical modality. Not only is metaphysical (real) modality relative, on this view it is merely relative, meaning that there are some metaphysical necessities the negation of which is possible in a genuine sense of “possible”. Specifically, the negation of some metaphysical necessities will be logically possible. E.g., it might be metaphysically necessary that there be causal relations (see section 5.2.1), but it is not against the laws of logic for there to be no causal relations. The gap between conditions for thought and cognition (see section 5.2.2) translates into a gap between logical and metaphysical modality, such that logical necessity is strictly stronger than metaphysical necessity. It follows that metaphysical necessity is not richly absolute, i.e. it is not at least as strong as any other genuine necessity. It is this result—that metaphysical

necessity is not richly absolute—which is most at odds with the essentialist view.

## 5.1 Different Options

The relative modality schema for metaphysical necessity is supposed to tell us about what it is to be metaphysically necessary: to be metaphysically necessary is to follow logically from a certain class of propositions. Let us call this class of propositions the *relative base* for a kind of necessity. The account we give of the relative base propositions for metaphysical necessity should make it clear why what follows is metaphysical necessity.

In principle, we could try to take any going account of metaphysical necessity and shoehorn it into this relative schema. However, if an account says that to be metaphysically necessary is to be  $F$ , and we then give an account of the relative base propositions in terms of being  $F$ , then this risks making the “relative” part of the account trivial. Merely relative modalities are characterized as following from a certain class of propositions.<sup>5</sup> If the relative base for  $\Psi$ -necessity is simply the class of propositions which are necessary in the relevant relative sense, i.e. the  $\Psi$ -necessities, then the account will be trivial. Arguably, the interesting feature distinctive of this kind of necessity will not be that every proposition follows from itself, but the feature which isolates that particular relative base. To avoid this problem, the relative base class of propositions needs to be a subset of the eventual class of necessities, a smaller privileged class of propositions sharing a particular feature (e.g.  $M$  for metaphysical necessity), which is not shared by all the resulting necessities. The relative base propositions will also be trivially relatively necessary in the relevant sense, but they will be singled out by this special feature. One challenge in modifying extant accounts of metaphysical necessity will be to avoid this kind of triviality.

So, what are the potential options for fleshing-out “ $M\varphi$ ”? A representative (if not exhaustive) list of accounts to be modified might be:

1. *Possible Worlds/Possibilities*: it is metaphysically necessary that  $p$  if and only if  $\langle p \rangle$  is true in all (possible) worlds/possibilities. (Lewis, 1986; Humberstone, 1981a)
2. *Principles of Possibility*: it is metaphysically necessary that  $p$  if and only if it is true that  $p$  according to all admissible assignments. (Peacocke, 1997)

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<sup>5</sup>Note, a proposition  $p$  is understood to be relatively necessary in some sense just when there is a certain class of propositions  $X$  of which  $\langle p \rangle$  is a logical consequence. On this basis, even absolute necessities will be relative, insofar as the class of absolute necessities follows logically from itself. The present project is interested in *merely* relative necessity, i.e. necessities which are not also absolute.

3. *Essentialism*: it is metaphysically necessary that  $p$  if and only if it is true in virtue of the nature of all things that  $p$ . (Fine, 1994)
4. *Deflationism*: it is metaphysically necessary that  $p$  if and only if  $\langle p \rangle$  is a kind of truth which convention treats as metaphysically necessary. (Cameron, 2009, 2010)
5. *Kantianism*: it is metaphysically necessary that  $p$  if and only if it follows logically from the formal universal conditions on possible experience that  $p$ .

The purpose of this chapter is to explore and develop option (5). I will first look briefly at options (1)–(4). To properly assess each alternative would take too much space. Having already argued for RM, I will not be considering these views in their own right. I will focus on a brief sketch of how each account might be fitted into the relative modality framework, and the challenges to be faced.

### 5.1.1 Possible worlds

The most obvious way to modify a possible worlds view is to specify a relative base class of propositions which are true in all worlds (or possibilities).<sup>6</sup>

It is metaphysically necessary that  $p$ :  
 $\exists\varphi(\varphi$  is a conjunction of propositions which are true in all worlds  
 $\& \Box(\varphi \rightarrow p))$

However, this is a non-starter. The view falls foul of the triviality worry raised above. The defining condition is equivalent to “ $p$  is true at all worlds”. For suppose that  $p$  is true at all worlds. Then there is a conjunction of propositions  $q$ , namely  $p$  itself, which is true at all worlds and such that  $\Box(q \rightarrow p)$ . Conversely, suppose there is a conjunction of propositions  $q$  which is true at all worlds and such that  $\Box(q \rightarrow p)$ . Since  $q$  is true at all worlds and  $\Box(q \rightarrow p)$ ,  $p$  must also be true at all worlds. It seems natural to say that, on this view, what makes for metaphysical necessity is truth at all worlds. Complicating matters by putting this in terms of RM does not add anything.

One might try an alternative strategy. Rather than expand “ $M\varphi$ ” in terms of truth in all worlds, one might use underlying principles concerning worlds as the condition. Divers and Melia (2002) present a number of principles or axioms they take to comprise a theory of Genuine Modal Realism (GMR): the kind of possible worlds theory which takes possible worlds to

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<sup>6</sup>If you think there are impossible worlds (see, e.g., Nolan (1997)) then metaphysical necessities will not be true in all worlds (on pain of being true in impossible worlds) but rather true in all *possible* worlds.

be concrete worlds, just like ours, which are causally and spatiotemporally disconnected from our world.<sup>7</sup> Some of the axioms are:

- (O8) Some individuals are worlds.
- (O9) An individual  $x$  is a world iff any two parts of  $x$  are spatiotemporally related to each other, and anything spatiotemporally related to any part of  $x$  is itself a part of  $x$ .
- (O10) Every individual that is a part of a world is a part of exactly one world.
- (O11)  $\alpha$  is the world of which we are parts.
- (O12) For any individuals  $x_1, x_2, \dots, x_n$  there is a world containing any number of duplicates of each, if there is a spacetime big enough to hold them all, and such that for any spatiotemporal relation the duplicates in question stand in that relation.

(2002, p. 16)

The alternative strategy is thus to read “ $M\varphi$ ” as “ $\varphi$  is a conjunction of axioms of GMR”. To be possible is thus to be compatible with these axioms, and to be necessary is to follow from them. One might think that these axioms will entail *what worlds there are*, and from thence *what is true in all worlds*. But there are two mistakes here.

First, worlds are defined in terms of individuals, and the axioms do not tell us what individuals there are, just that there are individuals (see Divers and Melia (2002, p. 15)). So in addition to the GMR axioms, truths about individuals will be required. Such truths appear to be beyond the remit of the theory GMR. If this is so, then we cannot give an account of metaphysical necessity as whatever follows logically from the axioms of GMR. If metaphysical necessity is truth in all worlds, and the GMR axioms do not entail what worlds there are, then they won’t entail what is metaphysically necessary. Note also that to include all such truths about what individuals exist would make their existence metaphysically necessary, which is unacceptable.

Second, suppose that the axioms could somehow state or determine what worlds there are. This is not enough to yield metaphysical necessity. One would also need to include in the axioms a principle taking us from what worlds there are, to propositions which are true in all of them. One candidate axiom might be principle (P).

- (P) It is possible that  $P$  iff there is a world according to which it is the case that  $P$ .

(2002, p. 17) or its sibling (P\*)

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<sup>7</sup>In contrast to other accounts of the nature of possible worlds, such as ersatz accounts whereby worlds are propositions or other abstract objects.



(P\*) It is necessary that  $P$  iff it is the case that  $P$  according to all worlds.

However, if (P) and/or (P\*) are included as axioms of GMR, this would be to include an extant definition of metaphysical possibility and/or necessity in the relative base, being a logical consequence of which (being logically compatible with which) is supposed to be constitutive of metaphysical necessity (possibility). This hardly seems right. But it is not clear what other axioms would be able to do the job here. This is at best a serious challenge for someone who wants to defend a possible worlds version of RM.

What if we were to take the metaphysical necessities to simply be the axioms and theorems of GMR, minus principle (P)? This would result in the view being that the theory GMR is metaphysically necessary. But we were not interested in the modal status of the *theory*, we wanted to use the theory to tell us about the modal status of other propositions (as well). Using the axioms of GMR as the relative base in a relative account of metaphysical necessity only succeeds in confusing metaphysical necessity and possibility as defined by the theory with the modal status of the theory itself.

### 5.1.2 The Principles of Possibility

The *principle-based conception* of metaphysical modality is a view propounded by Christopher Peacocke (see Peacocke (1997, 1999)). His aim is to integrate our understanding of modal concepts, knowledge of modal facts, and the truth conditions of modal statements together in one theory. The way the theory treats truth conditions for modal statements can be understood as a kind of ersatz theory of possible worlds. Rather than speaking of *worlds*, Peacocke puts things in terms of *assignments*. To give a concept or thought (made up from concepts) an assignment is to assign the concept or thought a semantic value (a thought is assigned a semantic value in virtue of the semantic values assigned to the concepts which make up the thought). Semantic values are understood primarily in Fregean terms—objects, Fregean concepts, functions etc.—although Peacocke does also make provision for properties as well. A *specification* is a set of thoughts or propositions which purport to describe a state of affairs. Assignments provide the ersatz worlds. Peacocke then gives an account of when a specification is genuinely possible in terms of *admissible* assignments.

A specification is a genuine possibility iff there is some admissible assignment which counts all its members as true. (Peacocke, 1997, p. 526)

The “principles of possibility” are intended to specify the conditions for an assignment to be admissible.

The first principle of possibility, the *Modal Extension Principle*, is presented in two parts.

**Modal Extension Principle, Main Part:**

An assignment  $s$  is admissible only if for any concept  $C$  which is not de jure rigid, the semantic value of  $C$  with respect to  $s$  is the result of applying the same rule as is applied in the determination of the actual semantic value of  $C$ . (Peacocke, 1997, p. 533)

**Modal Extension Principle, Second Part:**

For any concept  $C$  which is de jure rigid, and whose semantic value is in fact  $A$ , then for any admissible assignments, the semantic value of  $C$  according to  $s$  is  $A$ . (Peacocke, 1997, p. 534)

This principle is concerned with the constitutive rule of a concept. An assignment for a concept is admissible if it does not violate the constitutive rule for the concept. E.g., if it is constitutive of the concept *vixen* that it be the intersection of the concepts *female* and *fox*, then any assignment which resulted in the concept *vixen* being assigned a semantic value which included a male fox, or a female gorilla, would violate the rule, and hence be inadmissible by this principle.<sup>8</sup>

Peacocke also includes *constitutive principles*. For example:

If  $P$  is a property which is an object  $x$ 's fundamental kind, then an assignment is inadmissible if it counts the proposition  $x$  is  $P$  as false. (Peacocke, 1997, p. 540)

An assignment is inadmissible if it both counts as true the proposition  $x$  exists and counts the proposition  $x$  bears  $R$  to  $y$  as false. (Peacocke, 1997, p. 541)

These principles are not concerned with the concepts involved and their constitutive rules, but with objects, properties and relations, and what is constitutive of them. Note that both kinds of principle boil down to being based on *constitutive* principles; in the former case, what is constitutive of concepts, in the latter, what is constitutive of objects, properties and relations (which may in turn be represented by concepts). These principles provide *necessary conditions* for an assignment to be admissible: an assignment cannot be admissible without satisfying these principles.

One further principle of possibility is presented, this time providing a *sufficient condition* for admissibility: "the principle of constrained recombination".

An assignment is admissible if it respects the set of conditions on admissibility given hitherto. (Peacocke, 1997, p. 543)

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<sup>8</sup>Examples of such an inadmissible assignment might be where the concept *vixen* is assigned as a semantic value a Fregean-concept under which male foxes fall, or where the concept *vixen* is assigned as a semantic value a set of individuals (an extension) which has female gorillas as members.

One can read this final principle as saying, in effect, of the other principles presented “*and that’s all the principles there are*”. So an assignment is admissible if it satisfies all of the principles of possibility, and the only such principles there are are the modal extension principle and constitutive principles. With all of this in place, Peacocke is then in a position to say when something is necessary or possible.

A Thought or proposition is possible iff it is true according to some admissible assignment.

A Thought or proposition is necessary iff it is true according to all admissible assignments. (Peacocke, 1997, p. 544)

In summary: a specification is a set of thoughts or propositions describing a state of affairs.<sup>9</sup> The specification can be given different assignments. Assignments are admissible if they conform to the principles of possibility. Propositions are metaphysically possible if they are true according to some admissible assignment; propositions are metaphysically necessary if they are true according to all admissible assignments.

Can Peacocke’s view be used in conjunction with RM? Most natural would be to put the principles of possibility in as the relative base propositions.

It is metaphysically necessary that  $p$ :  
 $\exists\varphi(\varphi \text{ is a conjunction of principles of possibility} \ \& \ \Box(\varphi \rightarrow p))$ .

It is metaphysically possible that  $p$ :  
 $\neg\exists\varphi(\varphi \text{ is a conjunction of principles of possibility} \ \& \ \Box(\varphi \rightarrow \neg p))$ .

However, these principles are not supposed to yield metaphysically necessary and possible propositions, but rather admissible assignments. It is *assignments of semantic value* to propositions, not propositions, which are assessed with respect to the principles of possibility. The problem is an instance of that faced by a combination of RM with any possible-worlds-based account, ersatz or not, as discussed above (section 5.1.1). On such views, metaphysical modality is to be understood quantificationally, in terms of truth in all or some possible worlds. Principles are then given in order to determine which worlds are possible. But these principles cannot be used directly to determine what propositions are possible or necessary. In the case of Peacocke’s view, the “worlds” are assignments of semantic values to sets of propositions; they are “possible” just when they satisfy the principles of possibility.

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<sup>9</sup>If the description of the state of affairs is maximally specific, we can think of the set of propositions as describing a possible world.

Perhaps one can combine these kinds of possible world accounts with RM in two steps. The kind of possibility which is relative is the kind of possibility which applies to worlds; the kind of possibility and necessity which applies to propositions is then defined in terms of quantification over worlds. However, RM explains the relative necessity of a proposition in terms of the proposition following logically from a class of propositions. The proposed account would lose this feature, and so not count as a version of RM. The necessity of a proposition would be explained in terms of truth in all possible worlds, regardless of how what worlds are possible is determined.

Another way to try to combine Peacocke's view with RM would be to use the principles of possibility to pick out the relative base propositions. Rather than being relative to *the principles of possibility*, metaphysical necessity could be understood as being relative to *those constitutive rules etc. which the principles of possibility pick out as being important*.

It is metaphysically necessary that  $p$ :  
 $\exists\varphi(\varphi \text{ is a conjunction of statements of constitution \&}$   
 $\Box(\varphi \rightarrow p))$ .

E.g., the proposition that *all bachelors are unmarried* is supposed to be metaphysically necessary because it is true according to all admissible assignments, which means that any assignment according to which it is not true violates the constitutive rules of the concepts *all*, *bachelor* and *unmarried* (and perhaps the *is* of predication). Perhaps another way to put this is simply to say that it follows from these constitutive rules that all bachelors are unmarried. One might also say that a proposition such as *some bachelors are bald* is metaphysically possible because it is compatible with these constitutive rules.<sup>10</sup> Note, however, that this strategy does away with talk of admissible assignments, and quantification over such assignments. We are just taking the constitutive rules and principles exploited by the “principles of possibility”, and assessing propositions directly in terms of their logical relations to these rules and principles. This is no longer really a Peacockean view of modality. Rather, we have drifted into essentialist waters.

### 5.1.3 Essentialism

Essentialists claim a direct link between the essences of objects and necessary truths about those objects. Having argued that essence cannot be defined in terms of necessity, Fine writes:

Certainly, there is a connection between the two concepts. For any essentialist attribution will give rise to a necessary truth; if

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<sup>10</sup>In order for this strategy to work, the “constitutive rules” I have been mentioning have to be the kinds of things that can be related by logical consequence and compatibility. So “rules” has to be construed in terms of indicative statements of rules (e.g. All cars drive on the left), rather than imperatives (e.g. Drive on the left!).

certain objects are essentially related then it is necessarily true that the objects are so related (or necessarily true given that the objects exist). However, the resulting necessary truth is not necessary simpliciter. For it is true in virtue of the identity of the objects in question; the necessity has its source in those objects which are the subject of the underlying essentialist claim. (Fine, 1994, pp. 8–9)

Furthermore, having noted that metaphysical necessity is “insensitive to source”, Fine suggests that metaphysical necessity be understood as *truth in virtue of the nature of all objects*.

... far from viewing essence as a special case of metaphysical necessity, we should view metaphysical necessity as a special case of essence. For each class of objects, be they concepts or individuals or entities of some other kind, will give rise to its own domain of necessary truths, the truths which flow from the nature of the objects in question. The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever. (Fine, 1994, p. 9)

One could try to give a relative account of metaphysical necessity by specifying that the relative base be truths about the essence, nature or identity of all objects.

It is metaphysically necessary that  $p$ :  
 $\exists\varphi(\varphi$  is a conjunction of propositions which are true in virtue of the nature of all things &  $\Box(\varphi \rightarrow p)$ )<sup>11</sup>

The problem is that the essentialist takes *being true in virtue of the nature of all things* to immediately constitute being metaphysically necessary, but RM requires distance to be put between these two features. Being true in virtue of the nature of all things has a certain important status, making it relevant for metaphysical necessity. But metaphysical necessity must be a matter of following from these truths. However, there are some serious problems for such a view.

One worry is that it seems that all the relevant propositions that we want to count as metaphysically necessary will already count as being true in

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<sup>11</sup>One might include an additional quantifier explicitly.

It is metaphysically necessary that  $p$ :  
 $\exists\varphi\exists xx(\varphi$  is a conjunction of propositions which are true in virtue of the nature of  $xx$  &  $\Box(\varphi \rightarrow p)$ )

Note that I have used a plural quantifier, “ $\exists xx$ ” (there are some things), to allow for cases where something is true in virtue of the nature of *some things*, and that is not reducible to it being true in virtue of the nature of each of the things. E.g., that Socrates is numerically distinct from Plato is true in virtue of the natures of Socrates and Plato, together, but not true in virtue of the nature of Socrates alone (*mutatis mutandis* for Plato).

virtue of the nature of all objects. So what purpose could there be in taking an extra step to seeing what follows from them? One response might be to argue that particular essential truths, such as that Socrates is human, are true in virtue of the natures only of the relevant things, in this case Socrates, whereas what is true in virtue of the natures of *all* things are rather general essentialist principles, such as the essentiality of kind. Then, these general principles will form a relative base, which along with additional premises, such as the fact that Socrates is human, will yield additional metaphysical necessities, such as it being metaphysically necessary that Socrates is human.

However, there is an ambiguity in how to understand “truth in virtue of the nature of all objects”. One might take this to mean that every object must contribute to each such truth, such that the relevant essence here is whatever is shared by all things. However, such a restriction would result in an extremely restricted set of features, and an impoverished account of metaphysical necessity. Indeed, (Shalkowski, 2004) takes this to provide an account of *mere logical possibility*, rather than anything metaphysical.

Essentialist claims to the effect that something is logically possible but not metaphysically possible amount to the following: the features common to the nature of all things—familiarily expressed by logically consistent propositions—are insufficient to rule out a given possibility, for example, that Kripke’s lectern might have been made of ice. When the full nature of that lectern is considered, however, this possibility is excluded. If the logically possible is simply that which contravenes no universal essentialist facts, then it is not at all surprising that not all logical possibilities are genuine possibilities. (2004, p. 80)

Essentialist metaphysical necessity is properly understood as *all those truths* which are true in virtue of the nature of an object (or objects), rather than truth in virtue of the nature common to all objects. In other words, the relative version should be understood as

It is metaphysically necessary that  $p$ :  
 $\exists \varphi \exists x x (\varphi \text{ is a conjunction of propositions which are true in virtue of the nature of } x x \ \& \ \Box(\varphi \rightarrow p))$

and not

It is metaphysically necessary that  $p$ :  
 $\exists \varphi \forall x (\varphi \text{ is a conjunction of propositions which are true in virtue of the nature of } x \ \& \ \Box(\varphi \rightarrow p))$

So the triviality objection still stands.

There is an additional point to consider: even if there is a way to start with essentialist principles and give an account of metaphysical necessities

as being *non-trivially* relative, the aim of this chapter is to explore a view in the metaphysics of modality whereby metaphysical necessity *just is* a relative form of logical necessity. It is not enough to show that metaphysical necessity and logical necessity bear certain logical relations to each other: we need to be able to make sense of the metaphysical view. The problem is that the standard essentialist view takes logical necessity to be a special case of metaphysical necessity. So logical necessity would be explained as what follows logically from the natures of logical entities. But then what is the necessary connection implicit in this implication? What is logical necessity relative to? Logical necessity? We end up in a circle. To avoid this problem, one could retain a straightforward, non-relativist, essentialist account of logical necessity at the heart of the view. But then this would undermine the move to relativize the essentialist account of metaphysical necessity: why not also go for the straightforward essentialist account here? Alternatively, one might opt for a different account of logical necessity, e.g., that logical necessity has its source in constitutive norms for thought. I think this kind of view might appeal to someone who agrees with the essentialist that there is a kind of necessity which has its source in the natures of things, but who shares my concern that essentialist accounts of logical necessity cannot account for the bindingness of logic on our thinking (or who has other concerns regarding essentialism for logical necessity). The debate between a Kantian and an essentialist account of metaphysical necessity will then come down to other matters, beyond the mere suitability of the account for fleshing-out RM.

#### 5.1.4 Deflationism

Deflationism is the view that there is no special feature shared by all the so-called metaphysically necessary truths. Rather, there are certain kinds of truths, such as mathematical truths, analytical truths, natural kind identities, and so on, which we take to be particularly important, and thereby give them a special status in the way we describe them.

What is it that distinguishes the truths that are necessary from those that are contingent? The thought that the distinction is drawn by us rather than the world is best unpacked, I think, as the thought that there is *nothing* special about the necessary truths as opposed to the contingent ones: there is no deep metaphysical division to be drawn between those truths that could have been otherwise and those that couldn't. (Cameron, 2010, pp. 354–5)

Cameron connects this deflationist strategy with Sider's take on conventionalism.<sup>12</sup> Metaphysical necessities are not truths which are true by conven-

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<sup>12</sup>See Sider (2003).

tion; rather, they are true in the normal way, but it is convention that we treat them as metaphysically necessary.

Sider offers us a variant on conventionalism that abandons the useless notion of truth in virtue of convention. Sider's thought is this: that it is not true by convention that  $2+2=4$ , but rather a matter of convention that this truth is a necessary truth... This is a deflationist view of modality. There is nothing special about the truths of maths, or analytic truths, or natural kind identities, etc., that we are latching on to when we single them out as necessary truths, it's just that we consider such propositions important, and so we use our modal language to accord them special status. (Cameron, 2009, p. 14)

Two questions immediately arise: First, how should we understand the status that is conferred upon certain truths—such as mathematical truths—when convention treats them as “necessary”? It doesn't look like mere convention can guarantee that they cannot be false. E.g., couldn't convention have been such that the status of necessity was not conferred upon mathematical truths, but upon truths about the weather instead? So what *does* convention add to these truths? This leads us onto the second question. This kind of deflationist view leads in turn to a new project, to determine the purpose and importance of using modal language in order to understand why certain kinds of truths, and not others, are conventionally treated as metaphysically necessary. In other words, why do we have this convention, and does this explain why some kinds of truths rather than others are conventionally necessary?

So what are our reasons for drawing this latter division where we do? That's a good question; and to answer it we should also ask: why is it that we modalise in the first place? To help answer why we draw the division where we do we should first enquire as to why we draw such a division at all. Why engage in modal talk? What would we be missing if we didn't? (Cameron, 2010, pp. 356)

A deflationist reading of “ $M\varphi$ ” would go something like “ $\varphi$  is a conjunction of mathematical truths *or* true natural kind identities *or* analytic truths...”. An independent (non-modal) account can be given of when a proposition counts as mathematical etc., and then metaphysical necessity is simply what follows from this resulting class of propositions. However, there are a number of problems facing both this relative version, and the deflationist view in general.

The first problem is that a fully worked-out version of deflationism might be expected to be able to tell us all of the kinds of propositions which



count as (entailing those propositions which are) metaphysically necessary, i.e. to complete the disjunction “ $\varphi$  is a conjunction of mathematical truths *or* true natural kind identities *or* analytic truths...”. If this was done by isolating some key feature which all of these kinds of truths have in common, then the view is in trouble. It would arguably be *this feature* which is distinctive of metaphysical necessity. The only role left for convention to play would be something like it being conventional to recognise this feature. The deflationist will reply that the only feature these kinds of truths have in common is *being conventionally taken to be necessary*. By studying these conventions—our practices of making modal judgments etc.—we should be able to isolate those kinds of truths which fall under this convention and accordingly complete the disjunction. Again, the view will fall back on an account of why we consider some kinds of propositions to be particularly “important”, and what “importance” here really means. It is difficult to see how such an account could be given without making some general claims about what is considered to be important. And so the same problem arises: if there is a general account to be given of the propositions considered to be important, in order to account for our practice of considering them as important, then this general account would appear to undercut the role of convention and give a direct account of necessary truths.

Second, a problem particular to the relative version of deflationism is what to say about logical necessity. Sider’s conventionalism, from which Cameron’s deflationism takes its lead, is designed to cover logical necessity as well. There are *logical truths*, and these are a kind of truth which is conventionally considered to be necessary. But if logical necessity is given the same treatment as metaphysical necessity, this threatens to undermine RM entirely. RM says something like: metaphysical necessity is logical necessity relative to a certain class of propositions, and logical necessity is something else. The deflationist version will say something like: metaphysical necessity is logical necessity relative to a class of propositions conventionally considered to be “necessary”, and logical necessity is a matter of certain propositions being conventionally considered to be “necessary”. One might as well not bother with the relative part at all, and just say there are certain propositions conventionally considered to be important in a certain way, such that we call them necessary. Different kinds of necessity, one might expect, will match up with different kinds of propositions, i.e. logical necessity with logical truth, metaphysical necessity with logical, analytical and essential truth. It is not clear what the machinery of RM can add. Recall, one argument in favour of RM was to account for the similarities between different kinds of necessity. In effect, deflationism can answer this question without going relative: different kinds of necessity have in common that they are classes of truths treated a certain way in light of convention. Of course, one might choose to give a different account of logical necessity. But then the deflationism project risks being undermined. If there is genuine necessity in

the form of logical necessity, and metaphysical necessity is a relative form of that, this seems to be incompatible with the reductive, deflationist project.

In brief, deflationism has some big questions to answer before it can be properly considered, such as the nature of the status conferred on propositions, if it can't be understood as truth come what may, and the purpose served by having such conventions at all. The view faces the challenge of giving an account of our considering of some kinds of proposition as "important" without relying on a general feature of those propositions, but it looks as though this challenge will be difficult, if not impossible, to meet. In terms of its compatibility with RM, deflationism faces difficulties when it comes to an account of logical necessity.

## 5.2 A Kantian Relative Modality View

Another way to expand upon RM for metaphysical necessity is to take inspiration from Kant's account of real modality, as examined in Chapter 4. Recall, Kant's notions of real necessity and possibility were easily captured by the relative modality schema.

It is really possible that  $p$ :  $\neg\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \neg p))$

It is really necessary that  $p$ :  $\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow p))$

where the predicate " $C\varphi$ " is to be read as " $\varphi$  is a conjunction of formal conditions on experience". The remainder of this chapter will be devoted to motivating and developing this as an account of *metaphysical* necessity and possibility, i.e.

It is metaphysically necessary that  $p$ :

$\exists\varphi(\varphi \text{ is a conjunction of formal conditions on experience } \& \ \Box(\varphi \rightarrow p))$

It is metaphysically possible that  $p$ :

$\neg\exists\varphi(\varphi \text{ is a conjunction of formal conditions on experience } \& \ \Box(\varphi \rightarrow \neg p))$

There are undoubtedly a number of important questions to be considered. I will address the following issues in turn:

- How should we understand the idea of a formal condition on experience?
- Why does this count as *metaphysical* necessity?
- What is the relationship, on this account, between metaphysical necessity and logical necessity? Is one of these kinds of necessity absolute?

- Where does mathematical necessity fit into the account?
- This account tells us when a *proposition* is metaphysically necessary. Do purported cases of *de re* metaphysical necessity raise a problem?
- What the account say about purported standard cases of metaphysical necessity, specifically cases of the necessary *a posteriori*?

### 5.2.1 Conditions on Experience

#### Transcendental Arguments and Transcendental Idealism

The core Kantian idea is that there are certain conditions on our having any experience of the world at all. One might call them presuppositions of experience: if there is to be experience, then *these* features must be in place, or *these* concepts must be deployed. The Kantian method for discovering these conditions on experience is the *transcendental argument*.

The first premise of a transcendental argument concerns a phenomenon that we can agree on, e.g. *we have experience as of an external world*. The second premise draws out the conditions under which the first premise can be true, e.g. *if we have experience as of an external world, then such and such must be the case*. The conclusion is a simple *modus ponens* move: *therefore, such and such is the case*.

We have experience (or, knowledge).  
If there is experience (or, knowledge), *p* must be true.  
Therefore, *p*.

(Walker, 1978, p. 10). The simplest way to think of a transcendental argument is on the model of an argument from presupposition. E.g.,

Adam met his mother-in-law.  
If Adam met his mother-in-law, Adam must be married.  
Therefore, Adam is married.

The argument draws out what is presupposed in taking the premise to be true. Similarly: Jim put his children to bed; therefore Jim has children. In these simple cases, there is no great mystery in how the arguments work. In particular, the reasoning in the “Adam” example might be called analytic. We are required to know that the meaning of *mother-in-law* is something like *mother of one’s spouse*, and the meaning of *spouse* is something like *person to whom one is married*, so we can work out that Adam is married from his having a mother-in-law to meet simply by virtue of understanding the words in the premises. With a full-blown Kantian transcendental argument, is it not so clear that the reasoning is analytic. E.g., do we simply need to understand the premise “We have experience” in order to conclude that all objects are spatiotemporal? More seems to be going on here.

At this point, it may be helpful in understanding conditions on experience to look at two rival interpretations of the fruits of a transcendental argument from a premise concerning our experience or knowledge. On the face of it, all that a transcendental argument can tell us is what must be the case if our experience is to be as it is, e.g., that everything is causally connected, or that all external objects are in space and time. The argument does not *prima facie* explain *why* these things are the case.

The idea that transcendental arguments always show something to be constitutive of reality, or reality as we know it, needs to be treated with some caution. What they establish is that unless certain things were the case experience, or knowledge, would not be possible, but this does not by itself guarantee that such conditions are constitutive in any sense stronger than that. In particular, it is not necessary that the conditions be imposed by the mind itself in constructing our experience. Kant thought that they must be: on his view transcendental arguments show us what it is that the mind contributes to the world of appearances, and they guarantee its objectivity. (Walker, 1978, p. 11)

This insight leads to two primary interpretations. The *austere interpretation* takes it to be sufficient that we have charted-out the necessary structure of the world of experience. The *transcendental idealist* interpretation demands that we explain the source of this necessary structure of experience in terms of the contribution of the cognitive faculties of the experiencing subject.

The analytic interpretation regards statements about the conceptual presuppositions of experience as self-sufficient, and the Critical problem as solved once the structure of experience has been specified. It grounds all claims about the structure of experience on an appeal to the impossibility of our forming any other conception of experience. The structure of experience, it holds, is nothing more than the necessary window onto the world, and cannot be said to give shape to it: that experience has a structure is ultimately just a matter of our having such and such concepts and being unable to conceive any alternative to them, and the attempt to invest it with metaphysical significance over and above the completely minimal sense of being necessary for experience it regards as gratuitous and erroneous.

The idealist interpretation, by contrast, sees the need for further explanation of the structure of experience, and it refers this structure to the operations of our mind. (Gardner, 1999, p. 33)

This raises a question: whether a Kantian account of metaphysical necessity should be austere, or go the full hog and commit to transcendental idealism?

Recall, Strawson's austere interpretation understands an *a priori* condition on experience to be 'an essential structural element in any conception of experience which we could make intelligible to ourselves' (Strawson, 1966, p. 68). We can discover what these essential structural elements of experience are via transcendental arguments. By the proposed account, metaphysical necessity would be whatever follows from this structure of experience, and metaphysical possibility would be whatever is not ruled out by it. However, there are problems with taking the austere route.

First, part of this kind of interpretation is that one is not supposed to invest the view with any metaphysical significance. This is what is necessary for experience; there is nothing more to be said, and no metaphysical conclusion to be drawn. We learn something about how we experience the world, indeed, we learn what we cannot help but experience, if we are to have any experience at all. But it is not clear how, if at all, this connects with reality. Metaphysical necessity is at least supposed to be factive—to imply truth—and furthermore to tell us something substantive about reality. This is precisely what the austere interpretation appears to *deny* that we can take from our discovery of the necessary structure of experience. So an austere interpretation of conditions on experience looks to be an inappropriate fleshing-out of a relative account of metaphysical necessity.

In response, one might water down the claim that there is nothing more to be said beyond charting-out this essential structure of experience. One might rather allow that the austere interpretation leaves it entirely open as to what the source of this structure might be, thereby allowing that it is legitimate to go further and ask the question. The transcendental idealist offers one particular answer to this question: the necessary structure of experience is imposed upon the world by the subject. But there are surely other candidate answers, e.g., that things instantiate this structure independently of how we experience them, and we experience them correctly. An account of metaphysical necessity which drew upon this weaker austere interpretation could still maintain that metaphysical necessity is relative to these structure features of experience. This says something more about what metaphysical necessity *is*. All that is left open is the *source* of that necessity. But perhaps that is an advantage of the account. It can be agreed what metaphysical necessity *is*, but the view can accommodate rival accounts of its source.

However, this still leaves us in need of an account of the source of metaphysical necessity, and not just any account of the source of the structure of experience will result in something resembling metaphysical necessity. Suppose we are all brains in vats, with a scientist determining parameters for the form of our experience, but leaving the particular details of our experience subject to a random computer program. In this kind of case, we would not take the kind of necessity relative to the structure of our experience to tell us anything substantive or true about the world. Rather, it only tells us

about the scientist's program of parameters for the experience of his envatted brains, if anything. It looks like the austere interpretation alone is not fit for present purposes.

Are we then to commit ourselves to a transcendental idealist interpretation? Gardner (1999) explains how such an interpretation makes good sense in light of what he calls 'The Problem of Reality'.

Now in order for reality or any part of it to become known to us, some sort of condition must obtain whereby it becomes an *object* for us. As it may also be put, something must bring it about that the objects composing reality *appear* to us. But the question is: what makes reality into an object for us? Its being an object for us is not established by its simple existence. And whatever allows reality to be an object for us cannot be merely postulated or taken for granted as a primitive fact—it stands in need of philosophical explanation, if anything does.

Whatever it is that allows reality to become an object for us is naturally and perhaps inevitably conceived as some sort of fundamental connecting relation between reality and ourselves. The question is then what this relation consists in. (Gardner, 1999, p. 34)

So what might connect reality and our representations? The first option is that reality simply impresses itself upon our minds. However, this requires our minds to be 'appropriately receptive' to reality, which raises the original question again: what is it about our minds that makes them appropriately receptive to reality, such that reality can be an object for us? The reverse would be to say that reality can be an object for us, not because it imposes itself on the mind, but due to our own activities. However, again, it must be explained how our minds can succeed in reaching out to reality. The worry is that skepticism, dogmatism or solipsism threatens. If we can't make sense of how our experience and knowledge is genuinely of reality, either we have to give up on the idea that we have knowledge and experience of reality; or we can only dogmatically assert that we do; or we restrict reality to our own experience.

In light of this kind of problem, transcendental idealism seems to provide a fairly plausible answer. The idea that we can have knowledge or experience of things are they are in themselves, apart from how we experience them, is rejected. Rather, focus is placed on the notion of an *object-for-us* or a *knowable object*.<sup>13</sup> The idea is that, given the problems faced by trying to explain how our representations can conform to reality, we should turn things around and consider if the problem of reality can be addressed by the idea that reality must conform to how we represent reality.

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<sup>13</sup>See Gardner (1999, p. 39).

To suppose that objects must conform to us is to reverse the customary direction of explanation of knowledge. In the realist scheme, the arrow of explanation runs from the object to the subject: if a subject S knows an object O, then the explanation for S's representing O lies ultimately in O's being the way it is; had O not existed or been otherwise, S would not have represented O or would have represented O differently. Kant reverses the arrow: the deepest, most abstract and encompassing explanation of representation lies in how S is. The constitution of objects is thus determined at the most fundamental level by the subject. (Gardner, 1999, p. 41)

How does this help with the problem of reality?

[This approach] maintains...that these subject-constituted objects compose the only kind of reality to which we have access...On this approach, skepticism is refuted by showing that, although claims to knowledge of real things in the strong sense must, as the skeptic says, be rejected as dogmatic and groundless, reality in the weaker sense is something that we can know precisely because we constitute it. Knowledge claims are thus defended on the basis that reason can have insight into 'that which it produces after a plan of its own' (Bxiii). (Gardner, 1999, p. 41)

Reality is a possible object of experience and knowledge for us because our activity in part constitutes reality, and whatever we contribute to in this way is a possible object of experience and knowledge.

At this point, some readers will be alarmed. Surely we don't partly constitute the external world of which we have experience in this way? The following remarks should go some way to allaying the worst fears. *First*, it is not my intention here to endorse and defend transcendental idealism.<sup>14</sup> But it is worth mentioning as one interpretation of conditions on experience that has been discussed and worked out in detail. I argued above that *some* account has to be given of the source of this 'essential structure of experience', to ensure that any kind of necessity relative to it can properly be called metaphysical. One such account is transcendental idealism. However, there may be other, better, accounts. In what follows, many of the details of the Kantian relative view of metaphysical necessity will depend only on the idea of conditions on experience, and not on the account of their ultimate source. So if a good alternative to transcendental idealism were to arise, these points would not be affected.

That said, a background commitment to transcendental idealism need not be seen as such a bad thing. The *second* point to note is that, if one

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<sup>14</sup>This would presumably at least take an additional thesis.

takes the problem of reality seriously, this kind of view helps us to avoid skepticism, dogmatism and solipsism, each of which looks like far a worse prospect than transcendental idealism to me.

*Third*, transcendental idealism is not the kind of idealism which has it that the *existence* of objects depends upon the mind. It is the structural features without which we would have no experience that are supposed to be provided by the subject, not the material which is thereby structured into a format suitable for experience.

Since, for Kant, the philosophical motivation for regarding objects as subject-dependent derives from the problem of reality, and not from the kind of considerations that move Berkeley, there is reason for regarding objects as subject-dependent *only* to the extent that they are conceived in terms of the conditions under which objects for us are possible at all, i.e. only with respect to those of their features by virtue of which they conform to the structure of experience; we are justified in regarding as subject-dependent only whatever in objects pertains to the possibility of their being objects for us at all. The writ of idealism runs no further. (Gardner, 1999, p. 42)

What is intuitively implausible about idealism in general is the common sense idea that our experience of external objects, such as of a red car, depends upon those external things and not on our minds. But the transcendental idealist does not claim that, e.g., the existence of the red car, or the colour of the red car, depends upon or is constituted by my mind. Rather, that external object can only be an object of my experience insofar as I impose certain structural features on it, such as it being a spatiotemporal object subject to some causal laws. Once it is a possible object for me, then its own features, such as colour, can wear the trousers.

The *a priori* element in cognition as a whole is the object-enabling structure of experience, the set of conditions that makes objects possible for us, and the *a priori* features of objects are those by virtue of which objects conform to that structure. Once this *a priori* structure is in place, knowledge becomes an *a posteriori* affair. . . the empirically real features of objects are those which they have over and above (and conditionally upon) their *a priori* features, and on the basis of which the realist form of explanation has legitimate application. (Gardner, 1999, p. 43)

The idea that the mind cannot create objects, but may still impose some general features on objects, does not seem so outlandish.



## Intuitions and Categories

What kind of features, then, are supposed to be included in these conditions of experience? For Kant, those conditions arise from *a priori* features of our particular capacity for receiving information—our faculty of sensible intuition—as well as our particular capacity for processing that given information by applying concepts—our faculty of understanding. The conditions of experience thus consist in the *pure forms of intuition*, space and time, and the *pure concepts of the understanding* (categories), concepts such as substance and causation. Recall, the modal concepts are also included in the categories, but they are different to the others. They do not directly contribute to conditions on experience, but concern those conditions of experience themselves.

I discussed before (section 4.3.3) how considering any one candidate feature involves engaging in an extensive debate in its own right. To assess each potential feature here, then, in order to list the conditions on experience to which metaphysical necessity is (claimed to be) relative, would be over-ambitious. Indeed, it was never part of the brief that metaphysical necessity is going to be easy to specify. I will, however, give a sketch of some of the kinds of conditions that might be included.

A good example of plausible Kantian necessities can, I think, be taken from the *Analogies* in the first *Critique*. Here Kant deals with substance and causality. Consider, e.g., the second analogy.

*Principle of Succession in Time, in accordance with the Law of Causality*

All alterations take place in conformity with the law of the connection of cause and effect. (Kant, 1781, 1787, B232)

The arguments for the principles of the analogies are premised on the claim that we need the idea of an objective time-order in order to account for our experience as of an objective world.

If a realm of objects is to be represented, then it must be possible to draw a distinction between the subjective and the objective aspects of our representations, i.e. between the aspect of our representations which refers to us their subjects, and the aspect which can be taken to refer to a world of objects. Now the very first thing that is needed here, Kant argues, is a distinction between the temporal order of our representations, and the temporal order of objects: if we are to think of objects as distinct from our representations, then we need to be able to think of them as existing in time, as a matter over and above the inner flow of our representations. In other words, we need to be able

to form the idea of an *objective time-order*, in which objects exist with determinate temporal locations, as distinct from the merely subjective time-order in which our representations succeed one another. (Gardner, 1999, pp. 171–2)

The second analogy takes our requirement for experience of an objective time-order, and works back from that to a need for an experience of objective change, and from there to causal laws.

The argument, briefly stated, is that experience of objective change, i.e. of the world as changing, as opposed to merely oneself or one's representations changing, is necessary for experience of an objective time-order, and that the distinction between change occurring in our representations, and change occurring in an objective world, can be made only by employing the concept of causality. (Gardner, 1999, p. 175)

Kant argues that the distinction between objective and subjective change rests upon the relation of succession governing the former being *necessary and irreversible*. He uses the examples of walking around a house, and watching a ship sail downstream. In the first case, our representations of the house—the front, the left side, the back etc.—change in a particular order, but due to the fact that we have chosen to walk one way rather than another. We could just as well have walked in a different direction, and seen the parts of the house in a different order. So the change we see in the house is merely subjective change. In contrast, there is nothing we could do to change the order of representations comprising our experience of the ship sailing downstream, to make it such that it was sailing upstream. In this case, our representations change because the object is changing, not because we, the subject, are changing. The succession in representations is necessary and irreversible—we can do nothing to change it—and so this is distinguished as a case of *objective* succession or change.

... what makes the difference, according to Kant, is that in the case of the ship I organise my experience according to a rule which makes the order in which I experience things necessary and irreversible. And the concept of a necessary and irreversible succession is, Kant says, the concept of a causal relation: the relation of cause and effect is both necessary and irreversible. The principle of causality is justified, therefore, on the grounds that only an a priori rule, by virtue of which one appearance can be regarded as *necessitating* another, allows us to refer change to objects, as required for an objective time-order. (Gardner, 1999, p. 176)

The rule which gives rise to the necessary and irreversible relation of succession, which is distinctive of objective change, is the relation of cause and effect.

This provides an example of the kind of transcendental argument that is employed by Kant. Our experience as of an objective world, it is argued, is possible only if we have experience of an objective time-order, and thence, if we organise the world according to a concept of causality. Looking just at the conclusion, rather than the argument, it does seem fairly plausible. What would experience be like if we were able to alter the changes in things at will? Would we genuinely have a sense that the world was objective, and that things could change independently of us, if we never experienced resistance to changing them ourselves? It is unclear whether it would make sense to attribute change to an object if we could always affect that change by altering something about ourselves. So it looks like some kind of necessary and irreversible relation of succession is required as a condition on experience. Even if one argued that this was not *causality*, we still have an example of a condition on experience, regardless of what we call it.

Furthermore, the resulting principle is suitably general. It does not say that the actual laws of cause and effect that govern our world are necessary, just that *some* necessary connection of cause and effect is a condition on experience. The conclusion is that the relation of succession in the case of objective change is necessary and irreversible, and that the concept of a necessary and irreversible relation of succession is just the concept of the relation of cause and effect. But this says nothing about requiring that our particular laws of nature inform this causal relation. Thus, I would suggest that the second analogy also gives us a good example of how we can separate natural from metaphysical necessity on this Kantian view. In short, the idea is that the laws of nature could (metaphysically) have been different, although, whatever they were, they would have to (metaphysically) include some relation of cause and effect.

### 5.2.2 Metaphysical Necessity?

Even if we can make good the notion of a kind of necessity which is relative to conditions on experience, why is this a good candidate for filling the shoes of metaphysical necessity? Recall, metaphysical necessity is supposed to be something like the strictest real necessity: of all the factive kinds of necessity which tell us something substantive about the world, metaphysical necessity is the “narrowest”: if something is metaphysically necessary, then it is necessary in any other real sense.

If we understand conditions on experience as contributing to a solution to the problem of reality, i.e. as explaining how reality can become an object of experience or knowledge for us, then one can provide the following rationale for taking the necessity which is relative to these conditions to be

*metaphysical* necessity.<sup>15</sup> Any reality that can be experienced or known will be subject to these conditions on experience. If anything is not compatible with these conditions, then it will not be part of any reality that can be experienced or known; and anything that follows logically from these conditions will have to be part of this reality. In terms of the domain of “reality that can be made an object of experience or knowledge”, these conditions on experience provide a relative base for a kind of necessity which covers all of that domain. Other kinds of necessity, e.g. biological necessity, might focus on a smaller area of reality, e.g. the biological organisms, but given that these things are still part of the wider domain of reality, they will still be subject to conditions on experience, and the associated necessities will still apply to the smaller domain. So it looks like the necessity which is relative to conditions on experience is the strictest necessity for the domain of “reality that can be an object for us”.

The obvious challenge to be made here is: this kind of necessity isn't the strictest kind of real necessity, because it does not cover all of reality; it covers only reality “which can be made an object for us”. There is surely then a kind of necessity which concerns *all* of reality, regardless of what we can experience, which is stricter. To be fair, a Kantian framework doesn't allow for any cognition or experience of “things are they are in themselves”, although the existence of these things is posited as grounding the existence of the things we can and do experience.<sup>16</sup> One might be forgiven for thinking that the proper subject of metaphysics ought to be things-in-themselves, and not things as they appear to us. However, part of the Kantian movement has been precisely to move away from this kind of “speculative metaphysics”. If we have reasons for thinking that we cannot have experience or knowledge of things-in-themselves, then the project of trying to do metaphysics for these things is a non-starter. One risks being thrown into skepticism or dogmatism. The Kantian way out is to favour the reality that we can know and experience. This is the world of empirical science; it is hardly uninteresting or illegitimate. Metaphysics should be concerned with how things are in the world we inhabit, not a realm of things that cannot even be “an object” for us. Note that even discussing these things is difficult to make sense of: if they cannot be objects for us, it is not clear what we are talking about when we purport to talk about them. If one nevertheless maintains that metaphysical necessity should concern things-in-themselves, not things as they appear to us, then the Kantian can simply say: so much

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<sup>15</sup>This does not require a commitment to transcendental idealism, rather just any decent account of the source of these conditions on experience which addresses the problem of reality.

<sup>16</sup>Kant does allow that we have other kinds (other than knowledge and experience) of access to the ‘noumenal realm’, such as the access that practical reason has to the laws governing the noumenal self, in order to be guided in action. But this is not the kind of access that can lead to judging or cognizing, or to truth and knowledge.

the worse for metaphysical necessity. What is presented here is a kind of necessity which governs everything one might ever know or experience, the world which is studied by the natural sciences, the world we live in. That is a pretty interesting kind of necessity.

Stang (forthcoming) has argued that Kant is committed to a kind of modality, noumenal possibility and necessity, governing the behaviour of things-in-themselves. Even if he is right, there is still no good reason to treat this, rather than Kant's real necessity (what Stang calls formal necessity), as metaphysical necessity. The same points stand. In addition, Stang argues that, given that we cannot have knowledge of noumena, *a fortiori* we cannot have *a priori* knowledge of noumena. This is intended to show that Kant does not conflate necessity with *a prioricity*, because we could not have any knowledge, let alone *a priori* knowledge, of noumenal possibilities and necessities. There is a presupposition in the majority of the literature on metaphysical necessity that we can have knowledge of metaphysical necessity—the debate is often over whether that knowledge is empirical or *a priori*. So this gives us another reason to associate metaphysical with real, not noumenal, necessity.

Another way to think of “conditions on experience” focuses on the distinction between *cognition* and *mere thought*. A *cognition* (*Erkenntnis*) is an objectively valid representation. One should think of a cognition as being a thought, with propositional form, which is objective. A thought is objective if it succeeds in being “about the world” if it has “an object” that it says something about. Kant defines truth for a cognition in terms of agreement with the object (A58/B82) suggesting that *truth-evaluability* depends upon a cognition having an object at all, which may or may not agree with how it is represented by the cognition. Conditions on experience can also be understood as the conditions under which a thought may be objectively valid, i.e. the conditions for a thought to have an object and hence count as a cognition. As a consequence, any object of a cognition—anything we can have cognitions about—will be subject to these conditions. Anything which is not compatible with these conditions cannot be an object of cognition. So the necessity which is relative to these conditions covers all possible objects of cognition. What else might there be beyond this domain, which might make us think that this doesn't count as the strictest real necessity? There *are* no other objects; to say that there are objects beyond what we can cognize would be to try to say something objective where objectivity is not possible.

By contrast, mere thought does not succeed in having an object (being objectively valid, being “about” anything). In a number of places Kant alludes to the distinction between thought and cognition. We may well be able to think all sorts of things, but to *cognize* them requires something more.

To *cognize* an object I must be able to prove its possibility, either from its actuality as attested by experience, or *a priori* by means of reason. But I can *think* whatever I please, provided only that I do not contradict myself, that is, provided my concept is a possible thought. (Kant, 1781, 1787, Bxxvi, footnote)

But this idea of the supersensible, which no doubt we cannot further determine—so that we cannot *cognize* nature as its presentation, but only *think* it as such—is awakened in us by an object the aesthetic judging of which strains the imagination to its utmost. . . (Kant, 1790, 268)

I discussed the first quotation earlier with respect to Kant’s distinction between real and logical possibility. *Real* modality, which is also what is at issue with metaphysical modality, was subject to conditions on experience. Mere *logical* possibility can go beyond real possibility. There are things we can think, that are logically possible, but such that these thoughts do not conform to the conditions on experience and so are denied an object. Examples of what might count as merely logically possible include thoughts such as *all vacuums are yawning* (the concept of a vacuum is empirically empty, so cannot feature in cognitions, but only mere thoughts); *Jim has telepathic powers* (likewise, the property of having telepathic powers could never be given in experience); *all toves are slithy* (the constituent concepts *tove* and *slithy* do not have empirical significance). One can understand a thought as being a suitable arrangement of concepts which has the same form as a cognition, but which lacks the possibility of having any intuition to give it an object. So we can think thoughts, and understand them, but they fail to gain traction on the world.

The second quotation makes reference to Kant’s aesthetic theory, but the main point is that we can *think* of the “supersensible” in nature—something beyond what could be given in sensible intuition—although we clearly cannot *cognize* it—cognition requires intuitions as well as concepts. In Kant’s aesthetics, he argues that a judgment of the sublime occurs when we try to take something in, e.g. the starry night sky, which is too great for us to properly cognize, to subsume under a concept. But we are still capable of being aware that there is something too great for us to take in. So, in a way, we can think of something that we cannot cognize.

In short, one can contrast metaphysical necessity as concerned with conditions on cognition, as opposed to conditions on thought in general. Cognitions are thoughts that succeed in being objective, about objects. The strictest real necessity should tell us about the widest possible domain of objects. There is no wider domain of objects, in the Kantian framework, than that of the possible objects of cognition. So any conditions on what can be cognized carry over to conditions on all objects.

### 5.2.3 Metaphysical Necessity and Logical Necessity

In Chapter 3 I argued for a Kantian account of logical necessity, whereby logical necessity is that necessity which attaches to a deductive argument, and the source of logical necessity is to be found in an account of laws of logic as constitutive norms for thought. Logical necessity has its source in norms, evaluability in light of which is constitutive of what it is to think at all. Note, now, the contrast between *thought* and *cognition*. A minimal notion of thinking is entertaining something of propositional form. Cognizing is something richer: one entertains a proposition that is objective, that says something right or wrong about the world. The idea is then that, whereas logical necessity has its source in constitutive norms for *thought*, metaphysical necessity has its source in conditions for *cognition*. Note that the laws of thought are *normative*, in order to account for the fact that we occasionally think illogically. By contrast, conditions for cognition can be counted as “constitutive”: if a thought violates one of these conditions, it cannot have an object, and therefore fails to count as a cognition (see sections 3.3.3–3.3.4).

It should come as no surprise that on this view metaphysical necessity is a mere relative form of logical necessity, relative to conditions on experience: metaphysical necessity is whatever *follows logically from* these conditions on experience. Any question regarding where the “oomph” of necessity comes from in metaphysical necessity is thereby reduced to a question regarding the “oomph” of logical necessity. Both kinds of necessity have their “oomph” in common; what makes metaphysical necessity distinctive is the kind of propositions to which it is relative. Again, it shouldn’t be surprising that on this view logical necessity is (richly) *absolute*. As metaphysical necessity is distinct from and relative to logical necessity, this means that metaphysical necessity is not absolute. However, there are those who think that metaphysical necessity *is* absolute, and that this should count against the present view. I contend, however, that my proposed account does a good job of respecting the intuitions that might lead one to maintain that metaphysical necessity is absolute.

Why might you think that metaphysical necessity is absolute? You might not think that mere logical possibilities are genuine ways that things might be. You might think that metaphysical necessity concerns how *things* must be, and that metaphysical possibility concerns how *things* can be, but that logical necessity concerns only concepts and logical connectives. Surely logical possibility, in going beyond metaphysical possibility, purports to describe a kind of possibility that goes beyond how things can be, and thus doesn’t make sense as a genuine way for things to be. Why should the non-contradictoriness of the sentence ‘Socrates could have been the son of George VI’—the fact that the sentence is not of the form of a logical falsehood, and

that the concepts do not clash—<sup>17</sup> have any bearing on what is possible or not for the thing *Socrates*? Shalkowski's peculiar form of essentialism illustrates this kind of worry quite well. In his example (cf. p.220) the thought is that Kripke's lectern could not have been made from ice (rather than wood), *full stop*, even though there is a weaker sense of possibility in which one might say it could. But this weaker possibility is not genuine, because for Kripke's lectern to have been made of wood would be to violate the essence of the lectern, resulting in a distinct object merely resembling the lectern. We have to take into account the nature of the object, the lectern, and not whether propositions purporting to be about the lectern are logically or conceptually consistent. The resulting view is that metaphysical necessity is (richly) absolute: metaphysical necessity is the strongest necessity and metaphysical possibility is the weakest possibility. Logical necessity is still strictly absolute—McFetridge's proof is respected—but logical possibility is dismissed as not genuine.

In fact, the Kantian views of metaphysical and logical necessity fully accommodate the intuition that mere logical possibility is not a way things genuinely could be, and that metaphysical necessity is in some sense absolute. Recall, all of reality that can be an object for us, all objects of cognition, is (are) subject to the conditions on experience. Metaphysical possibility is a matter of compatibility with these conditions. Hence, there can be no metaphysically impossible object or real thing. Indeed, the categories, which contribute to these conditions on experience, are often understood as combining to provide the 'concept of an object in general'. Just as an essentialist is concerned with the identity of objects, which leads them to favour metaphysical necessity and possibility, so the Kantian is concerned with what it is to be an object, which leads to a special role for metaphysical necessity and possibility. The primary difference is that the Kantian view maintains that logical necessity is nevertheless solely absolute, and that logical necessity and possibility, whilst not having the same kinds of consequences for real objects as metaphysical modality, still have a vital role to play. Even though on this view metaphysical necessity is not *absolute*, it is still the strictest real necessity. And it is this feature which allows the view to account for the intuition that metaphysical necessity is the strongest kind of necessity. It is not the strongest necessity *tout court*, but the strongest *real* necessity, the strongest kind of necessity which yields the widest kind of possibility for the real world. This is clearly an important status for metaphysical necessity to have. This should satisfy those who think that metaphysical necessity is absolute because mere logical possibilities do not seem to be a good guide to how reality could be. The Kantian does not claim that they are.

If logical necessity is understood as having its source in constitutive-

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<sup>17</sup>It is not part of the meaning of the name *Socrates* that its bearer have any particular parents.



norms for *thought*, then, roughly speaking, *of course* one wouldn't expect logical possibility to give a guide to how real things might be: the possibilities for what we can think shouldn't be taken to determine what can be. It seems *prima facie* plausible that we should be able to fly into wild fancies of thought without being constrained by whether those thoughts could become real in any substantive sense. There are further constraints to be taken into account if we want to consider what could really be the case. However, the essentialist's mistake is to think that this demotes the status of logical necessity and possibility such that logical possibility is not genuine, and logical necessity absolute only insofar as it is a kind of metaphysical necessity. The Kantian view, in contrast, places logical necessity at the beating heart of alethic modality. If all (non-logical) alethic modality is a mere relative form of logical modality, this not only explains what all these diverse kinds of modality (and their various modal "oomphs") have in common, but the task of explaining where (alethic) possibility and necessity come from *at all* is reduced to the project of explaining the source of logical modality. It is not a problem that logical possibility itself does not tell us how the world of real objects can be—possibility and necessity are restricted to the real world by an appropriate relative base.

I mentioned above (section 5.2.2) the close relationship between metaphysical necessity, cognition and truth. It looks as though the Kantian picture sets the limits of truth and truth-evaluability at the limits of the empirical world, the world we can cognize. But then what is the relationship between logical modality, mere thoughts and truth(-evaluability)? I argued before (section 3.5.4) that on a Kantian view logical necessities are included in constraints on objectively valid thoughts, cognitions. So logical necessity will imply truth for the same reasons that metaphysical necessity implies truth. However, in the case of *mere logical possibility*, it is not so straightforward to say that if it is logically possible that *p*, then it is possible for *p* to be *true*. A mere logical possibility is not cognizable—it is non-contradictory, but incompatible with conditions on experience—so it can only be expressed by a mere thought. But mere thoughts cannot have an object, and so they cannot be true, i.e. there is no object to agree with.<sup>18</sup>

If truth is defined as agreement of a representation with its object, then cognitions can be true because they are objective, but mere thoughts cannot be true because they cannot have an object, and so *a fortiori* cannot agree with their object. A question remains: are mere thoughts therefore *false*, or do they fail to have a truth-value at all? If truth is *agreement of a*

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<sup>18</sup>If one understands thoughts as something that can be true or false, then this worry is not going to make sense. In a Kantian framework, a better candidate for something that can be true or false is a *cognition*. The notion of thought in play here is something that is well-formed but which does not succeed in being objectively about the world, perhaps because a constituent concept has no empirical content, perhaps because the combination of concepts expresses a way the world couldn't be, and so on.

*representation with its object*, then there are two ways to define falsity on the basis of this: (a) a representation is false just when it disagrees with its object; (b) a representation is false just when it is not the case that it agrees with its object. Definition (a) requires that the representation have an object with which to disagree, hence a mere thought cannot be false, and so lacks a truth-value. (b), however, can be trivially satisfied in the case where the representation lacks an object: it is not the case that it agrees with the object because there is no object with which it might agree.

For present purposes, I do not need to decide which definition is to be preferred. However, it is interesting to note how this issue concerning the truth-value of mere thoughts can be compared to a more familiar matter from the philosophy of language, concerning the truth-value of sentences containing non-referring singular terms. This comparison should also illuminate some of the Kantian ideas surrounding mere or “empty” thoughts. Recall, Kant claims that

Thoughts without content are empty, intuitions without concepts are blind. (Kant, 1781, 1787, A51/B75)

A mental representation which lacks empirical content—which could not be confirmed or disconfirmed in experience in even a very weak sense of ‘could’—is “empty”.<sup>19</sup> This can be understood as analogous to the case of an *empty* singular term as in the sentence ‘Santa has a booming laugh’. Some philosophers argue that a sentence which contains a non-referring term, such as ‘Santa’, has no truth-value. E.g., Frege took predicates to “refer” to functions (concepts) which take an object and map it to a truth-value. So if a predicate is applied to a singular term to form a sentence, that sentence is true just when the function picked out by the predicate maps the object referred to by the singular term to The True. But if there is no object referred to by the singular term, as in ‘Santa’, there is no object to be mapped to any value, so the function remains undefined, and the sentence lacks a truth-value.

I propose that we can fruitfully understand what Kant means by an “empty thought” on this kind of model. The key difference is that, whereas in the case of an empty name the reference failure may be purely contingent, the empty thought *cannot* have an object. If we think that Santa Claus is metaphysically possible—that his existence would be compatible with conditions on experience—then even though the name ‘Santa’ is actually empty, it could have had its intended referent. The thought *that Santa has a booming laugh* has empirical content, because we could encounter such an intuition in experience, even though we actually won’t.<sup>20</sup> Metaphysically

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<sup>19</sup>Recall, Kant thinks that non-empirical truths have empirical content, e.g., in his account of mathematical construction.

<sup>20</sup>I don’t know what Kant would say about contingently empty names. I don’t want to complicate matters further by considering this.

possible reference is enough to secure content for a representation, rather than full-blooded actual reference. By contrast, a thought such as ‘Jim has telepathic powers’—a thought which is metaphysically impossible—can be thought of as necessarily lacking reference. There (metaphysically speaking) could be no instance of telepathic powers, so there is not even a possible referent (no concept or function, *has telepathic powers*) to determine a truth-value.

## 5.3 Further Issues

### 5.3.1 Mathematical Necessity and Mathematical Truth

There are two key issues to be considered when it comes to the relation between the present view and mathematics. First, given Kant’s concept-empiricism, and the view that propositions with no empirical content may lack a truth-value, what is to be said about the truth of mathematical claims? Second, what is the relationship between mathematical necessity and metaphysical and logical necessity?

First, Kant did not think that mathematical propositions lack a truth-value—part of the impetus for his project was to show how we can have *a priori* knowledge of mathematical truths, even though (according to Kant) they are not analytic truths. I discussed Kant’s view in more detail in section 4.5. The question is not so much whether Kant can say that mathematical propositions are true. Rather, it is whether we are constrained to accept a Kantian philosophy of mathematics along with a Kantian view of modality. The short answer is: no we aren’t. I will briefly sketch how some of the different views in philosophy of mathematics could be accommodated in this relative Kantian framework.

I discussed earlier how structuralism might naturally be incorporated into the view. It seems plausible to think that some kind of mathematical structure might turn out to be one of the necessary features of our experience. If mathematical structure were included in conditions on experience, this would render mathematics trivially metaphysically necessary. Mathematical necessity is often thought to be a kind of metaphysical necessity, given that it concerns a certain class of objects, i.e. mathematical objects such as numbers, sets and functions. However, one may argue that mathematical structure is not sufficient, that the view should allow for the *existence* of mathematical objects.

What about fictionalism about mathematical entities? One might think that mathematical entities such as numbers do not exist, but that they can still be a useful fiction. The best known brand of mathematical fictionalism is the view put forward by Harty Field.<sup>21</sup> He argues that mathematical state-

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<sup>21</sup>Field (1980).

ments are not *true*, and that mathematical entities do not exist, however, mathematics nevertheless provides a *conservative extension* to our scientific theories. A conservative extension to a theory does not allow one to deduce any theorem which could not have been deduced from the theory alone, however, this conservative extension may often make it quicker and easier to work with the theory and yield its consequences. This, Field argues, is the role of mathematics: it provides a conservative extension to the physical sciences. The problem for incorporating a view such as fictionalism into the Kantian view is that even Kant maintains that there are mathematical truths—it is just that they are not “made true” by existing mathematical objects. So going fictionalist would actually seem to take us *further* away from our intuitions about mathematics. Instead, one could endorse a restricted fictionalism concerning only the existence of mathematical entities. One might argue that the truth of mathematics is to be properly accounted for in terms of a Kantian account, but that mathematical entities are a useful fiction when it comes to thinking about and doing mathematics. It is perhaps easier to investigate the properties of a certain number if we think about it as being an existing object with features, rather than an aspect of the necessary structure of our experience of the world.

Although Platonism about mathematical entities—that they genuinely exist in an abstract realm—is not compatible with the letter of the Kantian view, there are various modifications that could be made towards a more accommodating view. One option might be to include existence statements in the conditions on possible experience. I argued before that Kant’s distaste for necessary existence could be motivated by considering that the conditions on possible experience, from which necessities are supposed to follow, are general in form, and so cannot be expected to yield particular existence statements. To follow through with this proposal, one would require arguments to the effect that certain existents are a prerequisite for our experience, e.g., one could try to argue that we could not have the kind of experience we in fact do if there were no numbers. If one at least agrees that some mathematical structure and mathematical truths are essential to experience (as Kant seems to), then one way to pursue this line of argument would be to argue that the only way to account for these truths, or this structure, is to appeal to the existence of mathematical entities.

The alternatives so far considered—structuralism, fictionalism, platonism—were concerned with how to incorporate mathematical entities into the world, into the conditions on experience. If such a strategy were successful, it looks like mathematical necessity would count as a kind of metaphysical necessity. The mathematical necessities (possibilities) would be those propositions which follow logically from (are compatible with) those conditions on possible experience which pertain to mathematics. However, not all philosophers agree that mathematics belongs with the metaphysical; rather, it should be understood as part of *logic*. The logicist movement of the be-

ginning of the twentieth century, including figures such as Frege, Russell and Whitehead, was concerned to show that mathematics could be reduced to logic.

Logicism, the theory that mathematics is in some important sense reducible to logic, consists of two main theses. The first is that all mathematical truths can be translated into logical truths or, in other words, that the vocabulary of mathematics constitutes a proper subset of the vocabulary of logic. The second is that all mathematical proofs can be recast as logical proofs or, in other words, that the theorems of mathematics constitute a proper subset of the theorems of logic. (Irvine, 2010)

This movement was partly a reaction to Kant's view that mathematical truths are *synthetic*, rather than analytic, and so not part of logic. However, if this part of Kant's view were set aside, one could incorporate a logicist view. If mathematics is a part of logic, then it need not be treated in the account of metaphysical necessity, i.e. as being part of the conditions of experience. Instead, it would need to be included in the account of logic and logical necessity discussed earlier. One downside is that it is not obvious how the account could accommodate the existence of mathematical entities.

### 5.3.2 *De Re* Necessity

RM tells us what it takes for it to be *R*-necessary that *p*. *Prima facie*, it looks like these relative accounts only cover what is generally called "*de dicto*" necessity. Can RM accommodate *de re* necessity as well? Does it need to?

First, what is the distinction between *de re* and *de dicto* necessity? Informally speaking, *de re* features pertain to *things*, whereas *de dicto* features pertain to "*dicta*" or "sayables". *De dicto* is associated with things such as propositions, sentences and statements. *De re* is associated with the things that propositions, sentences and statements are about.<sup>22</sup> More formally, *de re* modality is standardly understood as the case where a constant or free variable occurs within the scope of a modal operator. E.g., " $\Box Fa$ " is *de re* whereas " $\Box \exists x Fx$ " is *de dicto*. The idea is that, if it is necessary that Jane is human, then this is understood as being a *de re* necessity applying to *Jane*. By contrast, if it is necessary that there is something which is human, then there is no *thing* this possibility attaches to, it is simply a necessary proposition.

What to say about RM? Let us adopt for the time being the formal distinction. First, take the case of a constant in the scope of a modal operator,

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<sup>22</sup>By this, I do not wish to imply that it is possible for all things to be represented in a proposition.

i.e.

$$\Box_M Fa$$

where “ $\Box_M$ ” is the operator “It is metaphysically necessary that”. This is quite easily accommodated by RM. The statement is of the form of an operator applying to a proposition, albeit a proposition containing a constant. Therefore, we can apply the RM schema.

$$\exists\varphi(M\varphi \ \& \ \Box(\varphi \rightarrow Fa))$$

The *de re* reading of this would go something like:  $a$  is such that there is a conjunction of conditions on experience  $\varphi$  such that it follows logically from  $\varphi$  that  $a$  is  $F$ . In such cases, therefore, RM can accommodate *de re* necessity by employing a formal definition of *de re*, and by taking note accordingly of the structure of the propositions it deems necessary.

The difference between *de re* and *de dicto* can be demonstrated by the relative positioning of a quantifier and a modal operator. E.g.

$$\Box_M \exists x Fx$$

and

$$\exists x \Box_M Fx$$

show the difference between it being metaphysically necessary that there is something which is  $F$  (*de dicto*) and there being something which is metaphysically necessarily  $F$  (*de re*). This kind of *de re* statement is not of the form *modal operator + sentence*, but in the spirit of RM we can render it as follows:

$$\exists x \exists \varphi (M\varphi \ \& \ \Box(\varphi \rightarrow Fx))$$

This reads as saying that there is something which is such that it follows from a conjunction of conditions on experience that it is  $F$ .

Note that we can infer the more particular instances from the more general. E.g., take the following general *de re* necessity, that everything is metaphysically necessarily  $G$ .

$$\forall x \exists \varphi (M\varphi \ \& \ \Box(\varphi \rightarrow Gx))$$

Suppose we already know that object  $b$  exists. Then we can infer that  $b$  is metaphysically necessarily  $G$  (given that all things are).

$$\exists \varphi (M\varphi \ \& \ \Box(\varphi \rightarrow Gb))$$

This takes us back to the first formulation, i.e. in terms of containing a constant, rather than the scope of an operator.

One problem with relying on this formal definition of the distinction is that it is not clear how to apply it to some typical arguably *de re* cases of

metaphysical necessity. E.g., perhaps it is *de re* necessary that water is  $H_2O$ , however, it is not clear how to treat this formally as including a constant or free variable. One might try to treat this as a case of necessary coextension, i.e.

$$\forall x \Box(\text{water}(x) \equiv H_2O(x)).$$

—everything is such that necessarily, it is water if and only if it is  $H_2O$ . However, this is strictly speaking a *de re* necessity about *every thing*, not about *water*. One might try instead to go second-order, using predicate constants (names of properties) to formalize the claim as a necessary identity statement, i.e.

$$\Box(W = H_2O)$$

However, this second-order formulation assumes that it is correct to think of this case as one of identity (rather than, say, constitution), which some philosophers contest. The general lesson here is that, in relying on a formal definition of the *de re*, what RM has to say about purported cases of *de re* necessity will depend upon what the best formal definition turns out to be.

It has been suggested that there is a particularly intimate link between *de re* necessity and metaphysical necessity.

All forms of *de re* necessity (and of essence) will be fundamentally metaphysical, even though some forms of *de dicto* necessity may not be. (Fine, 2005, p. 243)

It is not surprising that Fine would make such a claim, given that he takes metaphysical necessity to have its source in the natures of *things*. He claims that all forms of *de re* necessity are *fundamentally* metaphysical, because he takes any kind of necessity which has its source in the natures of *some things* to be a restricted form of metaphysical necessity. Given the very different approach of the proposed Kantian relative view, one would not expect it to produce a similar link. Indeed, all of the examples of potential conditions on experience have been general in form. Even if the resulting general necessities have particular instances, ushering in some *de re* metaphysical necessity, at heart metaphysical necessity would seem to be largely *de dicto*.

A more pressing worry for RM comes from what I will call *asymmetrical de re necessities*. In general, these are cases where two or more things are taken to be necessarily related to each other in some way, but where the relevant relation is only necessary in one direction. E.g., Elizabeth II necessarily has George VI as a father, but George VI does not necessarily have Elizabeth II as a daughter; or table  $T$  is necessarily made from hunk of wood  $W$ , but hunk of wood  $W$  does not necessarily compose table  $T$ ; and so on. In such cases, the formulation which applies a necessity operator to a sentence is true—i.e. necessarily, Elizabeth II is the daughter of George VI, and necessarily, table  $T$  is made from hunk of wood  $W$ . However, this kind of formulation does not capture the intuitive asymmetry in the cases,

e.g., that Elizabeth II's identity depends upon the sperm and egg cells from which she was generated, but that there was nothing to stop George VI having no children, or different children. Normally, one can address this problem by introducing additional formal machinery. E.g., Wiggins (1976) modifies a  $\lambda$ -calculus to introduce a modal predicate-modifier. However, RM is committed to a formulation involving a sentence operator, whereby modality is applied to a proposition: it cashes-out *it is R-ly necessary that p*. Even if a formal definition of *de re* allows RM to count 'Necessarily, Elizabeth II is the daughter of George VI' as *de re*, insofar as the proposition contains something like constants (names), this still does not capture the purported asymmetry.

These kinds of asymmetrical necessity claims are examples of essence claims. The idea is that there is nothing in *what it is to be* George VI which requires him to have any particular child, or indeed any child at all, whereas it is part of *what it is to be* Elizabeth II that she have the parents she in fact has, including George VI. When it comes to an account of *necessity*, as opposed to *essence*, I agree with Fine insofar as he indicates that *essence* and *necessity* are different things.

My point... is that the notion of essence which is of central importance to the metaphysics of identity is not to be understood in modal terms or even to be regarded as extensionally equivalent to a modal notion. The one notion is, if I am right, a highly refined version of the other; it is like a sieve which performs a similar function but with a much finer mesh. (Fine, 1994, p. 3)

Essence and modality are similar notions, but they are nevertheless different. Where I disagree with Fine is of course in his claim that the relationship between essence and (metaphysical) modality is that the former provides the source of the latter. My view is that it is conditions on experience which define metaphysical modality, although this leaves open whether certain general essentialist-type principles might turn out to be amongst our prerequisites for experience of the world.

My suggested response is thus that, whilst claims about essentialist properties may be asymmetrical, claims of necessary are not. It may be no part of being George VI to have Elizabeth II as a daughter, but nevertheless, any world containing them both will be a world in which George is the father of Elizabeth.<sup>23</sup> Fine takes the asymmetrical essential relationship to be the source of a symmetrical necessary truth. That necessity cannot reflect this asymmetry is precisely part of Fine's argument to show that necessity and essence are distinct. RM is supposed to be an account of necessity, and so there is no *prima facie* problem if it cannot capture the asymmetry of

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<sup>23</sup>Granting for the sake of argument that there is indeed this asymmetric relationship, and allowing for useful possible worlds talk.



essence. The next question is whether there is indeed some kind of essential asymmetry, and if there is, whether RM can account for that. I discuss this further below in section 5.4.

### 5.3.3 The Necessary *A Posteriori*

Another common view is that there is an important class of metaphysical necessities that are knowable only *a posteriori*.<sup>24</sup> <sup>25</sup> This severing of the traditionally accepted relationship between necessity and *a prioricity* began with examples presented by Kripke (1980), including *Hesperus is Phosphorus*; *Gold is the element with atomic number 79*; *Cats are animals*; and *Water is H<sub>2</sub>O*. These are facts that can only be discovered through empirical methods. These are facts that science has told us. However, Kripke presented good reasons for thinking that they are nevertheless necessary. E.g., in the case of ‘Hesperus’ and ‘Phosphorus’, they both refer to the same *thing*, and one thing could not have been two things, so it is necessary that Hesperus is identical to Phosphorus. It might have been that when the names were first coined, they were used differently, such that they referred instead to two different objects. However, this would not be a case of Hesperus no longer being Phosphorus—of one thing being two things—but rather a case of the name ‘Hesperus’ and the name ‘Phosphorus’ being used differently. So, once it happened that, in the actual world, ‘Hesperus’ and ‘Phosphorus’ were coined to refer to one and the same thing, it could not have been that Hesperus was not identical to Phosphorus. That said, it took some empirical work to discover that the names did indeed pick out the same thing: that the star shining in the morning sky and the star shining in the evening sky, which were thusly named, are in fact both the planet Venus. I have put this in terms of names, because we tend to use names to refer to things, but the more general point is that we might pick out one thing in two different ways, and mistakenly believe that we have two things when we have one, such that although the “two” things picked out are necessarily identical, that they are identical will be a matter of an empirical discovery that these two different ways of picking things out pick out one and the same

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<sup>24</sup>The view cannot be that metaphysically necessities are distinctively *a posteriori*, unless one is willing to exclude mathematical truth from the realm of metaphysical necessity. Advocates of the necessary *a posteriori* presumably agree that (pure) mathematics is *a priori*.

<sup>25</sup>Note that the view under consideration is that  $\langle p \rangle$  is necessary and  $\langle p \rangle$  is knowable only *a posteriori*. This is in contrast to considering, in the case where it is necessary that  $p$ , how we can know that *it is necessary that p*. We are here considering knowledge, e.g., that Hesperus is Phosphorus, *not* knowledge that necessarily, Hesperus is Phosphorus. Although, it should be noted that if it is knowable only *a posteriori* that  $p$ , it won't be knowable *a priori* that necessarily  $p$  (assuming that one knows that necessity implies truth). So considerations regarding the epistemological status of  $\langle p \rangle$ , where  $\langle p \rangle$  is necessary, will have some bearing on the epistemological states of the proposition that it is necessary that  $p$ .

thing.

The Kantian relative view of metaphysical necessity implies an account of metaphysical necessities as being knowable *a priori*. If metaphysical necessities are those propositions which follow logically from conditions on experience, and if logical consequence and conditions on experience are knowable *a priori*, then the metaphysical necessities should be knowable *a priori*. I take it to be uncontroversial that, if anything is knowable *a priori*, then logic is. The question is whether the conditions on experience are. They are supposed to be knowable via methods such as transcendental arguments, which are supposed to be *a priori*. It is, however, unclear what is to be said about the first premise of these transcendental arguments, i.e., that we have experience or knowledge, or something similar. This doesn't look *a priori* if we take *a priori* to mean something like *knowable independent of any experience*. But, this is a strong reading. Many philosophers take it to be reasonable to expect that we need *some* experience for any kind of knowledge, if only to acquire concepts, or otherwise to be in a position to be a knower.

A more plausible way to understand *a priori* is as meaning *knowable independent of any particular experience*. We might need some experience to get into a position to be a knower, but no experience in particular to come to know that  $2 + 2 = 4$ . By contrast, we need a particular experience to come to know, e.g., that grass is green. By these lights, we do need some experience to come to know that we have experience, but quite clearly we need no *particular* experience. So perhaps it is *a priori* after all. A slightly stronger way to understand *a priori* is as meaning *knowable independent of any experience beyond that which is required to acquire the relevant concepts*. So not just any experience will do—we need experience suitable for us to acquire certain concepts—but beyond that no particular experience is required. So, e.g., we might need some experience suitable for acquisition of the concepts *2*, *4*, *addition* and *identity*, but no further particular experience to come to know that  $2 + 2 = 4$ . By contrast, as well as requiring experience to acquire the concepts *green* and *grass*, we need a further particular experience to come to know that grass is green. By this kind of view, we will need some experience to acquire the concept of *experience*. But beyond that, no *particular* experience will be required to come to know that we have experience, any experience will do.<sup>26</sup> Again, the first premise counts as *a priori*. If this is correct, metaphysical necessities would seem to be knowable *a priori*.

I am not going to dwell too long here on the epistemological status of

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<sup>26</sup>Indeed, arguably, any experience might be suitable for acquisition of the concept *experience*. Also, we should be able to reflect upon that experience (where we acquired the concept *experience*) and note that it was an experience. So all that was required was any experience at all. In the case of this Kantian premise, one can therefore argue that these two ways to understand the *a priori* collapse to the same.

conditions on experience because, even if they are *a priori*, there is a simple way to accommodate Kripkean *a posteriori* necessities. A common strategy is to split the cases into an *a priori* general principle and an *a posteriori* instance. Take the Hesperus-Phosphorus example. There is an *a priori* and necessary general metaphysical (even logical) principle, so the story goes, that everything is self-identical. It is a matter of empirical discovery that an instance of this principle can be expressed by the statement that Hesperus is Phosphorus. Likewise, in other cases, one can posit a general principle which is *a priori* and necessary. What is empirical or *a posteriori* is the discovery of what the instances of this principle are.

A *a posteriori* necessity is closely associated with *de re* necessity. The standard Kripkean examples are generally taken to be *de re* and *a posteriori*. Take the case of Elizabeth II and George VI. It is supposed to be *de re* necessary that Elizabeth II is the daughter of George VI, technically because names are involved, and intuitively because it is a relation holding necessarily between *those two things*. It is also thought to be knowable only *a posteriori*: we might understand the names very well, and be able to recognize the people, without being able to work out any familial relations from this. We can only come to know that Elizabeth is the daughter of George empirically. That said, it should not be assumed that *de re* necessity and *a posteriority* always go hand-in-hand. E.g., one might take it to be a *de re* necessity, concerning a mathematical object, that 7 is prime. But presumably this kind of mathematical truth is knowable *a priori*, despite intuitively concerning *the thing* which is the number 7. It is not so easy, however, to think of an example of an *a posteriori* necessity which is not *de re*. Indeed, given the split treatment I sketched above, where *a posteriori* necessities involve *particular instances* of general principles, one would expect these to be *de re*: the general principles are applied to particular things.<sup>27</sup>

Note also that allowing that metaphysically necessary particular instances follow from metaphysically necessary general principles helps the view to avoid the triviality problem that threatened some of the other options discussed in section 5.1. The worry was that a view that made all metaphysical necessities fall into the class of base propositions would render the relative part of the view redundant. A particular instance of a general principle is a good example of a metaphysical necessity which follows from, but is not one of, the conditions on experience.

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<sup>27</sup>Perhaps the following would count as an *a posteriori de dicto* necessity (on the controversial assumption that it contains no names): Necessarily, for all  $x$ , if  $x$  is a quantity of water, then there is a  $y$  which is a hydrogen atom and which is part of  $x$ .

## 5.4 Typical Cases

On the proposed account, what turns out to be metaphysically necessary? Not only is this of interest in terms of presenting the details of the account, but there is also a question of *extensional adequacy*. There are certain typical cases of metaphysical necessity which philosophers use as a guide when considering this kind of modality. I specified at the beginning of this chapter that the strategy would not be to settle on a class of cases and design an account with the goal of covering all those cases. But also, neither does it seem reasonable if an account of metaphysical necessity does not confirm at least *some* of those cases. In addition, given that those cases were not simply pulled out of a hat, but come along with plausible motivations, it should be possible to give a principled reason why any cases which are not covered by the proposed account are thus excluded.

I should clarify that it would go beyond the scope of this thesis to definitively say what is, or is not, metaphysically necessary. In the proposed account, this would amount to being able to show that certain principles are conditions on experience. This is another significant task to be taken on elsewhere. What I can do here, though, is to sketch the kind of principles one would expect to uncover, and which moves would be required to confirm certain typical cases.

The cases I will be considering are the standard Kantian conditions, the standard Kripkean examples and mathematical truths. I have discussed these to some extent already, but I will briefly recap in order to address the question posed here.

### 5.4.1 Kantian Cases and Mathematical Truths

Conditions on experience arising from the pure forms of intuition and pure concepts of the understanding, their logical consequences, and their instances, are what you would expect to come out as metaphysically necessary on the proposed view. Those arising from the forms of intuition are the more controversial cases: it is unclear how far one can defend the view that, as a matter of metaphysical necessity, all objects are spatio-temporal. This is the kind of view which presents *prima facie* problems for mathematics, i.e. the existence of abstract mathematical entities, and indeed any other abstract objects that one might want to admit (such as propositions, properties etc.). Setting aside issues to do with sensibility, the kinds of necessities arising from the idea of *conceptual* prerequisites for experience are more plausible, e.g., the analogies of experience (see section 5.2.1).

I have already discussed mathematical truth at length. Kant himself took mathematical truths to be what I am calling metaphysically necessary, given that he took their source to be in the pure forms of intuition, what I am calling more generally *conditions on experience*. If one doesn't want to

take Kant's particular view of mathematics, there are still good prospects for incorporating alternative views, rendering mathematical truths either as metaphysically necessary (structuralism, platonism), or as logically necessary (logicism) which will also imply their metaphysical necessity.

### 5.4.2 Identity

Most of Kripke's arguments for taking statements of identity between objects to be necessary are based around understanding these statements in terms of the self-identity of the *thing* referred to, rather than a statement of identity between *names*. It could have been that *the names* 'Hesperus' and 'Phosphorus' were given different meanings, and hence the sentence 'Hesperus is Phosphorus', with a different meaning, could have been false. But, given that the meaning of the sentence is actually something like *Venus is Venus*, then, unless one is prepared to allow that something could have failed to be identical with itself, one must agree that the sentence is necessarily true. One question, then, is whether the proposed Kantian account confirms the metaphysical necessity of self-identity for all things.

Nowadays, the necessity of self-identity— $\forall x \Box(x = x)$ —is taken to be a logical truth. As such, one would indeed expect it to be metaphysically necessary on the Kantian account, in virtue of being logically necessary. However, it is worth noting that self-identity was not uncontroversial in the time that Kant was writing. Most notably, Hume raised doubts about identity and self-identity.

His worry concerns our entitlement to the very idea of a *relation* of identity in the first place. Every legitimate idea, after all, must trace its pedigree to original impressions, and that is precisely what Hume is here suggesting the supposed idea of a relation of identity cannot do. His principle of separability—what is distinguishable is separable; what is separable is separate—makes the problem particularly acute. Since, as the principle implies, an impression of a relation must be a relation of impressions, no *single* impression could give rise to the idea of *any* relation, and no *multiplicity* of distinct relata could give rise to the idea of one single item's self-identity. Accordingly, Hume concludes that the idea of identity results from a "fiction of the imagination" and embodies a "mistake". (Rosenberg, 2000, p. 137)

(See also Hume (1739, 1740, I.IV.ii; pp. 250–1).) In this climate, Kant could not take self-identity for granted. Kant agreed with Hume that a concept of identity could not be acquired by abstraction from empirical experience, but instead of rejecting the concept, he argued how it was rather an *a priori* concept, necessary for us to have experience at all. Rosenberg (2000)

describes in detail how the relevant aspects of Kant’s view, in particular the *Analogies*, combine to provide a response to Hume.

What the Transcendental Deduction thus establishes, in short, is that time is “thought into” our experience precisely in and by our subsuming our sensible intuitions under *object-concepts*. Each of the three Analogies specifies a characteristic or feature of these object-concepts corresponding to one of the “modes” of time. We think a unitary *durational* time into experience by mobilizing concepts of persisting items (permanent substances); we think determinate *successions* of before and after into experience by mobilizing concepts of causally related items; and we think *contemporaneity* (“this while that”) into experience by mobilizing concepts of reciprocally causally interactive items.

Here, then, is where Kant locates the notion of a *persisting substance*. The *a priori* concept of an object *qua* unitary, permanent, self-identical substance is precisely the temporally-restricted (“schematized”) form of the most-general concept of an object *qua* logical-subject-of-judgments, i.e., an object-of-reference, the single subsistent subject of a multiplicity of inhering predicables. The generic (“unschematized”) concept is “inherence and subsistence”; the persisting substance of the First Analogy is its temporally-restricted (“schematized”) form. (Rosenberg, 2000, p. 142)

I will not dwell on the particular arguments here. I just want to highlight that, in accommodating the necessity of self-identity in this historical context, Kant can be understood to have made significant progress, where to us now this might appear to be a simple case of accommodating a logical truth.

So, self-identity should count as metaphysically necessary on the Kantian view, either in virtue of being a logical truth, or arising from considerations to do with substance in the *Analogies*. We can then move from the general case to particular instances, e.g.  $\Box(\text{Socrates} = \text{Socrates})$ .

The next question concerns cases of identity where different names are involved, e.g. “Hesperus is Phosphorus”. These can’t be understood as instances of  $x = x$  given the different names, but rather as instances of  $x = y$ . One step towards accommodating such cases is to draw attention to Barcan’s logical proof of the necessity of identity. Barcan (1947) famously proved the following theorem:

$$\forall x \forall y (x = y \supset \Box x = y)$$

Given that we have a proof in logic, we can conclude that it is logically necessary that, whenever identity holds, it holds necessarily. As we have

a logical proof, the relative Kantian account is able to accommodate this general necessity in virtue of its being logically necessary. (Note also that Barcan’s proof begins with the premise  $\forall x \Box(x = x)$ , so this builds upon the former case of the necessity of *self-identity*.)

However, this does not yet give us particular instances, e.g. that necessarily, Hesperus is Phosphorus. Normally, one could simply employ the rule of  $\forall$ -elimination, replacing a universal quantifier and the variables it binds with a constant, i.e.

$$a = b \supset \Box a = b.$$

However, Barcan’s proof relies upon using a free logic.<sup>28</sup> This means that we can only infer instances of the principle for constants already in use, i.e. for things whose existence has already been proven.

Suppose that  $a = b$ . How far can we get within the confines of Barcan’s free logic?

|     |  |                           |
|-----|--|---------------------------|
| (1) | $\forall x \forall y (x = y \supset \Box x = y)$ | Barcan’s theorem          |
| 2   | (2) $a = b$                                      | assumption                |
| 2   | (3) $a = b \supset \Box a = b$                   | $\forall E$ (twice), 1, 2 |
| 2   | (4) $\Box a = b$                                 | MPP, 2, 3                 |

Crucially, we can only conclude that necessarily,  $a = b$  *on the assumption that  $a = b$* . However, this is not obviously a problem. We don’t want it to be a matter of logical necessity that Hesperus is Phosphorus, because Venus might have failed to exist. All that we had in mind was the claim that, should Hesperus and Phosphorus exist, they could not fail to be identical. So it seems fair to say that, on the assumption that Hesperus is Phosphorus, we can conclude that necessarily, Hesperus is Phosphorus.

However, all is not well. A problem arises when we try to make sense of the resulting principle—that on the assumption that  $a = b$ , it is metaphysically necessary that  $a = b$ —in terms of RM. What we will have is something like principle (ID)

$$(ID) \quad \text{On the assumption that } a = b: \exists \varphi (C\varphi \ \& \ \Box(\varphi \rightarrow a = b))$$

This says, roughly, that assuming that  $a = b$ , there is a conjunction of conditions on experience which entails that  $a = b$ . But recall, conditions on experience are general: “ $a = b$ ” (e.g. “Hesperus is Phosphorus”) is particular, containing as it does constants (names). This would be fine if there was a plausible general condition on experience, an instance of which would be “ $a = b$ ”. But consider the universal generalizations of this statement.

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<sup>28</sup>Very briefly, Barcan’s proof starts with the premise  $\forall x \Box(x = x)$ . In a non-free, classical logic one could infer from this that  $\Box(a = a)$ , and from there that  $a$  exists. But we do not want it to turn out that it is a logical truth that  $a$  exists. So a free logic is employed, which blocks that particular inference.

“ $\forall x\forall y(x = y)$ ” is false, and the others—“ $\forall x(a = x)$ ” and “ $\forall x(x = b)$ ”—are not only false, but not sufficiently general.

One response to the problem is to argue that, if we have shown that (ID) is true, but that there are no *general* conditions on experience to logically entail “ $a = b$ ”, given that “ $a = b$ ” is indeed true, then there must be *particular* conditions on experience which logically entail “ $a = b$ ”, i.e. conditions on how  $a$  and  $b$  must be, not just general conditions on how all things must be. But such conditions do not look to be plausible candidates for prerequisites for any experience at all. Apart from anything, many of the relevant entities, such as Hesperus, are contingent. It would be odd if features of *contingent* entities were built into the conditions on any experience at all, which might easily fail to include the existence of those entities.

I think we have to reject principle (ID), and the steps which took us there. A plausible diagnosis of the problem may highlight the difference between considerations to do with entities and their self-identity, which is accommodated by the Kantian view, and issues arising from complicating matters by introducing different ways of referring to entities. Insofar as the sentence “Hesperus is Phosphorus” picks out the state of affairs that Venus is self-identical, the Kantian view can perfectly well accommodate the necessity of this self-identity. It appears that the Kantian view has serious difficulties accommodating this necessity when it is expressed using different names. Perhaps this is a consequence of the view focusing on the necessity of *things*, without having taken into account ways of referring to things. I will have to leave further discussion of this issue for elsewhere, but the points to bear in mind are (1) that the Kantian account can still accommodate some necessities to do with identity; (2) that even accommodating self-identity should be viewed as an achievement as set against a Humean background; and (3) that further investigation into the different ways we refer to objects, and how that is best incorporated into this view, may ultimately show how these Kripkean identities could be accommodated in my proposed account of metaphysical necessity.

What about statements of identity between natural kinds? The Kripkean claims that there are *kinds* of stuff, such as water, gold, cats and tigers, and that there are necessary and sufficient conditions for being of a kind. But our ordinary (non-scientific) ways of identifying kinds do not tend to use those necessary conditions. E.g., we ordinarily define a tiger as a kind of quadruped, but a three-legged tiger is still a tiger. Implicit in the way we think and talk about kinds is the idea that there is an underlying feature which makes for a natural kind, and that these features are discoverable by science. E.g., science has revealed to us that gold is the element with atomic number 79, and that water is the compound  $\text{H}_2\text{O}$ . Now, the word ‘water’, taken by Kripke to be a common name for a natural kind, might have been given a different meaning. However, as things actually are, its meaning has been fixed to refer to that natural kind which is the compound  $\text{H}_2\text{O}$ . The



stuff which is water *just is* H<sub>2</sub>O. Kripke construes statements such as ‘Water is H<sub>2</sub>O’ as identity statements between names of natural kinds, analogous to identity statements between proper names. For analogous reasons, he argues that they are also metaphysically necessary. So long as the words in the statement do not change their meaning, then it has to be true, on pain of a kind no longer being identical with itself.

Taking the Kripkean story at face value, these cases should be covered by the same considerations as for any other identity statements: the necessity of self-identity for natural kinds will be accommodated, but statements of identity involving different names for the same natural kind will be problematic. One might worry whether it is correct to understand these statements as genuinely of the form of an identity statement— $K_1 = K_2$ —or whether they have some other fundamental logical form, such as a statement of constitution, e.g.  $K_1$  *is constituted by*  $K_2$ . If they are not identity statements, then the discussion above does not apply. Furthermore, this is all premised on agreeing that there are natural kinds as something real in the world, rather than their merely being a way that humans tend to classify things. These, however, are not problems internal to the question of whether these cases are accommodated by the proposed account. Taking the cases at face value, there are reasons to think they can only be accommodated in a limited sense. Insofar as general questions might be raised concerning clarification of the nature of these cases, this is not something that the proposed view needs to take care of at this stage.<sup>29</sup>

### 5.4.3 Essentiality Theses

Here are some examples of the kinds of cases up for consideration:

- If Socrates is human, then necessarily, Socrates is human.
- If Socrates originated from zygotes  $X$  and  $Y$ , then necessarily, Socrates originated from zygotes  $X$  and  $Y$ .
- If table  $T$  is constituted by hunk of wood  $W$ , then necessarily, table  $T$  is constituted by hunk of wood  $W$ .

These illustrate (necessities arising from) the essentiality of kind, origin and constitution, respectively.

In accordance with the proposed view of metaphysical necessity, and understanding the necessity in these principles to be metaphysical, they should be cashed-out as follows:

- If Socrates is human, then  $\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \text{Socrates is human}))$ .

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<sup>29</sup>See also Hanna (1998) for a Kantian argument against these kinds of cases.

- If Socrates originated from zygotes  $X$  and  $Y$ , then  $\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow \text{Socrates originated from zygotes } X \text{ and } Y))$ .
- If table  $T$  is constituted by hunk of wood  $W$ , then  $\exists\varphi(C\varphi \ \& \ \Box(\varphi \rightarrow T \text{ is constituted by } W))$ .

It can be seen that these cases, when cashed-out, will fall foul of the same problem as principle (ID) above (section 5.4.2). What general principles, following from general conditions on experience, could underwrite instances such as “Socrates is human”? Again, the candidate universal generalizations of these instances do not do the job. E.g. “ $\forall x(x \text{ is human})$ ” is false, as are “ $\forall X(\text{Socrates is } X)$ ” and “ $\forall x\forall X(x \text{ is } X)$ ”.

One way to cover these cases might be to include explicit essentialist principles as, or following from, conditions on experience. So, e.g., it might be a general metaphysical necessity that if  $x$  is of kind  $K$ , then  $x$  is essentially of kind  $K$ . The idea would be to incorporate such principles *without* including an implication from essence to metaphysical necessity. I.e. trouble would ensue if this implied that if  $x$  is of kind  $K$ , then it is metaphysically necessary that  $x$  is of kind  $K$ , and hence that conditions on experience entail  $x$  is of kind  $K$ . Not only would this implication undermine the proposed account of metaphysical necessity, in letting essentialism in the back door, but this would lead us back to the original problem. Perhaps there is room for some *sui generis* notion of essence here, but work needs to be done to show how these bad consequences can be avoided, as well as showing that plausible general essentialist principles are (or arise from) prerequisites for experience.

These kinds of essentiality theses all come down to the issue of what the identity of something consists in. To properly address whether a Kantian view can accommodate these kinds of cases, we need to go back and consider what the identity of an object consists in in that Kantian framework. However, Kant doesn’t say very much explicitly about identity. We saw that what he says about substance can be viewed as a response to Hume’s rejection of identity. We can also look at his response to Leibniz’s principle of the identity of indiscernibles. Leibniz held that there couldn’t be two qualitatively identical objects, and hence that if  $x$  and  $y$  are qualitatively identical, then they are numerically identical. Kant argues that this principle is false for appearances, i.e. objects in the world of experience. For we have to take into account *intuitions* as well as concepts of objects. So it is enough for two qualitatively identical objects to be distinct if they are given in different intuitions. Given the spatio-temporal form of intuition, this boils down the view that a difference in spatial location at the same time is sufficient for numerical difference, even if all the (other) properties of objects are exactly the same.

But if it is appearance, we are not concerned to compare con-

cepts; even if there is no difference whatever as regards the concepts, difference of spatial position at one and the same time is still an adequate ground for the *numerical difference* of the object, that is, of the object of the senses. Thus in the case of two drops of water we can abstract altogether from all internal difference (of quality and quantity), and the mere fact that they have been intuited simultaneously in different spatial positions is sufficient justification for holding them to be numerically different. (Kant, 1781, 1787, A263–4/B319–20)

Admittedly, this gives us a sufficient condition for *difference*, not identity. It implies that identity must therefore involve spatio-temporal overlap, but this may only be a necessary condition. It may be insufficient for identity without, e.g., sameness of kind or sameness of origin. At least this shows that identity and difference in a Kantian framework importantly involve spatio-temporal relations, or more generally, conditions to do with intuitions, *particular presentations*, of objects. Perhaps we can build extra conditions into this, such that some kind of essentiality theses were included, but these certainly do not appear to be *required* by a Kantian framework.

In the end, it looks as though it will be tricky to incorporate these kinds of cases into the proposed account of metaphysical necessity. But that is not necessarily a bad thing. First, lots of cases *can* be accommodated, such as mathematical truths, consequences of Kant's categories, and self-identity. So we should not be worried about extensional adequacy. Second, I have attempted to provide a well-motivated account of what it is to be metaphysically necessary. If a consequence of the account is that it is not metaphysically necessary that, e.g., Socrates is human, then we can simply take this to be a lesson about what is metaphysically necessary. Not everyone finds all of these essentiality theses intuitively plausible, so such people will be happy to take the lesson. Finally, such cases have not been definitively ruled out. Someone who is strongly committed to these cases may still be able to find a way to accommodate them in my proposed account.

## 5.5 The Case for Kantian Metaphysical Necessity

In this chapter I have introduced an account of metaphysical necessity as an instance of RM, supplemented by Kant's views on real modality. In summary, the merits of this view are as follows. First, the view is set in the background of general arguments in favour of RM. If these arguments are successful, then some relative account of metaphysical necessity will be required. I have argued that this is a good one. The view is also set against a Kantian background. If one finds considerations such as the Problem of Reality to be a genuine and significant worry, then this account will stand

a better chance of avoiding this problem, given that it has been developed out of what can be construed as Kant's response.

Second, given the requirement for some relative account of metaphysical necessity, the Kantian account fares better than some of the most obvious alternatives. A possible worlds account either rendered the relative aspect of the account redundant, or confused the modal status of propositions assessed using the theory with the modal status of the theory itself. Peacocke's principles of possibility reduced to an account similar in key respects either to a possible worlds or an essentialist account. Thus, this approach stands or falls with one of those two. An essentialist account again threatened to render the relative aspect of the account redundant. Moreover, combining essentialism with RM failed to capture the spirit of essentialism. A deflationary account faced some serious challenges in its own right, and did not seem to be compatible with RM.

In contrast, a kind of relative necessity based on Kant's real necessity was seen to fill the boots of metaphysical necessity well, i.e. there are good reasons for taking this kind of necessity to be the strictest real necessity. Not only does the account accord with this general idea of what metaphysical necessity is, but it also turned out to confirm some (albeit not all) typical cases of metaphysical necessity. The account is also able to accommodate mathematical necessity, but is flexible enough to be adapted to suit different views in the philosophy of mathematics. It would not do if this account prejudged to too great an extent the nature of mathematics, and indeed there is scope to alter parts of the account depending upon the results of further investigation into mathematics.

The proposed view is also able to account for the association made between metaphysical necessity, *de re* necessity and the *a posteriori*. Not *all* metaphysical necessity is deemed to be *de re* necessity, and neither is all *de re* necessity deemed to be metaphysical. However, the view can account for some *de re* metaphysical necessity, dependent upon what turns out to be the best formal definition of the distinction. That some metaphysical necessities are knowable only *a posteriori* was accounted for by drawing on an existing strategy of separating *a priori* general necessities and their *a posteriori* instances.

Another advantage of using a Kantian framework is epistemological. To defend a Kantian view of the *a priori* is beyond the remit of the present project, but the line of thought goes something like this. We like to think that, not only do we have knowledge of many propositions that are metaphysically necessary, i.e. knowledge *that p* where it is metaphysically necessary that *p*; but also knowledge *that* certain propositions are metaphysically necessary, i.e. knowledge *that it is metaphysically necessary that p*. Our knowledge of propositions that are metaphysically necessary may often be uncontentiously *a posteriori*, e.g. few would argue that we can know *that Socrates is human a priori*, even if they claim that it is necessary. More gen-

eral metaphysical necessities, such as *all objects are causally related*, may be said to be known *a priori*.

In the case of knowledge that something is metaphysically necessary, it is unclear how this kind of knowledge could ever be, at bottom, empirical.<sup>30</sup> Indeed, Kant asserts that

Experience teaches us that a thing is so and so, but not that it cannot be otherwise. (Kant, 1781, 1787, B3)

The thought is that, much as empirical experience of the world can tell us how things *are*, there is nothing extra in experience which could account for our knowing how things *must be*. This is the same line of thought that lead Hume to deny that we can have knowledge of necessary causal connections (Hume, 1777, VI–V). Hume thought that the only *a priori* knowledge was to do with “relations of ideas”—logical and conceptual matters—as opposed to matters of fact. We cannot logically or analytically infer an effect from the cause, so Hume concluded that any knowledge of the necessary connection of cause and effect would have to be empirical knowledge. But then there is nothing in our experience of the cause which is the power to produce the effect. Hume thus concluded that we acquire our idea of causal connection via a non-rational custom of the mind to expect an effect to occur after its cause as a result of having repeatedly seen the two in regular conjunction.

All belief of matter of fact or real existence [cause and effect] is derived merely from some object, present to the memory or senses, and a customary conjunction between that and some other object... All these operations are a species of natural instincts, which no reasoning or process of the thought and understanding is able either to produce or to prevent. (Hume, 1777, V.I.38)

Hume saw that we could not have empirical knowledge of necessary connections, but also thought we could not have *a priori* knowledge of non-logical necessary connections. Kant agreed with the first point, but expanded the notion of *a priori* knowledge to also cover substantive, synthetic truths. Kant’s idea is that the synthetic *a priori* finds its source in the conditions on experience. Real necessity also has its source here. So, one way to come to know that something is really (metaphysically) necessary is to come to know that it one of, or follows from, the conditions on experience. The thought is then that, *in principle*, this account makes it easier to see how we could have substantive knowledge of the world without requiring any particular experience of the world. The source of the necessity is in the subject, and it seems plausible to expect that it will be easier to find out

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<sup>30</sup>We might learn that it is metaphysically necessary that *p* on some empirical basis, such as from reliable testimony. But how did the testifier come to know it?

things about ourselves without engaging in a particular experience with the world, than to find out things about the external world. This is not to say that the project will be *easy*. The point is that there is a principled link between the subject and necessary truth which may help to account for our *a priori* knowledge of necessity. By contrast, a full-blooded realist who takes metaphysical necessity to have its source in utterly mind-independent things, such as essences or other worlds, needs to explain how we can have knowledge of that necessity without requiring particular experience which we arguably cannot have.

Finally, it has also been shown that the proposed account is able to honour intuitions that metaphysical necessity is absolute as well as intuitions that only logical necessity is absolute. Logical necessity is absolute, in the sense of being the strongest alethic necessity, but we are drawn to think that metaphysical necessity is absolute because it is the strongest *real* necessity.

The main weakness with this approach might be that it rests on a Kantian framework which requires exploration and defence in its own right. However, I have indicated where the primary Kantian commitments lie, and sketched the kinds of arguments and considerations that will bear on their ultimate success or failure. The purpose of this chapter has been to consider how a Kantian relative modality view of metaphysical necessity would function, and what its primary advantages would be. It has turned out to be one of the better ways to flesh-out RM to give an account of metaphysical necessity.

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