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Things Could Not Have Been Otherwise

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Abstract. Within contemporary western philosophy, it is an almost uncontroversial view that at least some things could be at least somewhat different from what they are. I challenge this standard view. I claim that nothing could be otherwise, i.e. everything is necessarily what it is.

Keywords. necessitarianism, necessitism, modality, necessity, possibility, contingency

Résumé. Dans la philosophie occidentale contemporaine, il est presque incontesté que certaines choses pourraient être au moins quelque peu différentes de ce qu'elles sont. Je remets en question ce point de vue standard. Je prétends que rien ne peut être autrement, c'est-à-dire que tout est nécessairement ce qu'il est.

Mots clés. nécessitarisme, nécessitisme, modalité, nécessité, possibilité, contingence

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Introduction

Venus is a moonless planet. But could Venus have had a moon? And could Venus have been a star rather than a planet? Socrates was a Greek philosopher. But could Socrates have been a farmer instead? Could he have been Roman? France is a nation in Europe. But could France have been a nation in North America? Could it have been a province of Canada? More generally: what could have been otherwise? Call this the modal question. The modal question is the main focus of the present text.

Within contemporary Western philosophy, most accept that things could have been otherwise. Of course, there are disagreements about what things could have been different and how much things could have differed from what they are. But it is an almost uncontroversial view that at least some things could have been at least somewhat different from what they are. In fact, this view is so standard and uncontroversial that it figures as an unquestioned background assumption in a multitude of largely unrelated philosophical theories and arguments.

I challenge this standard view. I claim that nothing could have been otherwise, i.e. that everything is necessarily what it is. I argue that the standard view is largely unsupported: there are no good reasons to think that things could have been otherwise. While many accounts have been proposed regarding what constitutes evidence for mere possibilities, these turn out to be inadequate for our purposes. Indeed, these accounts presuppose that things could have been otherwise, support many more mere possibilities than one should be comfortable with, or fail to address the kind of possibility at play in the modal question. In addition, it turns out that the standard view has the highly undesirable consequence of forcing us into a version of radical scepticism. Finally, and contrary to what it may seem at first glance, ordinary modal discourse remains largely untouched even if we drop the standard view. By contrast, there are at least some good reasons to maintain that things could not have been otherwise. Notably, it allows us to provide a solution to some apparently inextricable philosophical puzzles. This, I argue, is

enough to turn the claim that things could not have been otherwise into a more compelling answer to the modal question than it is traditionally taken to be.

The present text is structured as follows. The first four chapters lay the foundations for the rest of the discussion. Chapter I discusses the modal question 'what could have been otherwise?', mapping both its internal structure and the relations it bears to other philosophical questions. Chapter II is methodological in nature: it defines the methodological framework under which I am working, spelling out what is required to answer the modal question. Chapter III builds on the framework just introduced to precisely define the problem raised by the modal question. Chapter IV introduces the standard view that at least some things could have been somewhat different from what they are, and contrasts it with my own view that things could not have been otherwise.

The next three chapters show that one should not be too prompt to accept the standard view. Chapter V attacks modal rationalism, a family of theories in the epistemology of modality according to which evidence for mere possibilities is provided by a particular mental faculty, such as intuition or imagination. Chapter VI attacks bridge views, according to which evidence for mere possibilities can be gained from some modal-related facts, such as facts about essence and abilities. Chapter VII argues that the standard view that things could have been otherwise has an unforeseen and undesirable consequence: it leads us to a form of radical scepticism.

The last two chapters claim that the view that things could not have been otherwise should be given more credit than it is usually given. Chapter VIII shows that contrary to what may seem at first glance, ordinary modal discourse is not committed to the standard view that things could have been otherwise. Chapter IX shows how rejecting the standard view allows us to solve (or at least make progress on) various philosophical puzzles, notably puzzles involving arguments for discernibility, and puzzles about merely possible objects.

Having said what this text is about, let me conclude this introduction by saying what it is *not* about. First, it is not a study of the meaning of modal expressions, the usage of modal concepts, or the nature of modalities. I will assume a certain view of modalities. I do not adopt this view arbitrarily. I think it rests on fairly standard and uncontroversial principles, and I think it is the most neutral view when it

comes to assigning a precise meaning to such statements as ‘I could be standing’ or ‘it is possible that someone lives on Mars’.

Second, the present text does not aim to establish a particular theory of truth or true statements. As it turns out, the notion of true (false) statements occupies an important role in my presentation and defence of the claim that things could not be otherwise. For some statements, I will say what it takes for them to be true. However, I will not say anything illuminating about why a statement meeting these conditions is true. That is, I will simply assume it is an unexplainable fact that a statement meeting such and such conditions is true.

Third and finally, the present text is not an attempt to occupy a position in what is sometimes called the free will debate. In particular, it is not about agency, causality, determinism, moral responsibility, or other notions that are central to this debate. The question ‘what could have been otherwise?’ is more fundamental than the question ‘do we have free will?’, in the sense that the former question does not presuppose that there are agents, actions, events, causality, laws of nature, and the like. Of course, an answer to the former question — including the answer defended in the present text — will inform an answer to the latter question. This is in part because the two questions are related to each other, but also because the question ‘what could have been otherwise?’ — just as the question ‘what is there?’, say — occupies an overarching spot within philosophy.

I. The Modal Question

The modal question ‘what could have been otherwise?’ has rarely been addressed as a whole. Yet, some aspects of the question have been extensively discussed. In particular, the modal question can be subdivided into two more specific questions: ‘how could things have been?’ and ‘what could have been?’.

In this chapter, I briefly discuss each of these two questions (§§1–2) and I highlight some intricate links between them (§3). This helps make clear exactly what is at stake in the modal question and why it is worth treating the question in a unified manner, as I do. I then briefly discussed the notion of possibility relevant to the question (§4). Having discussed the internal structure of the modal question, I turn my attention to its relation to broader philosophical issues. In particular, I point out that the answer to the modal question will depend on metaphysical and ontological issues (§5), and that this answer will be informed by one’s view regarding modal epistemology (§6).

1. Properties

How could things have been? Call this the question of properties. The question of properties is concerned with the properties that things lack, but could have. Thus, for example, the sentence ‘Venus could have been cube-shaped’ is a candidate answer to the question of properties. The question is also concerned with the properties that things have, but could lack. So, for example, ‘Venus could have failed to be a planet’ is an answer to the question of properties. Moreover, and despite its name, the question of properties is also interested in the relations that could have held or failed to hold between things. Thus, the sentence ‘Venus could have orbited Mars’ is an answer to the question of properties, as is ‘Venus could have failed to orbit between Mercury and Earth’.

The question of properties is not only concerned with whether something could have had (or lacked) such or such particular property. It is also concerned with whether something could have had both this

and that property at the same time. More generally, the question is concerned with whether something could have had a specific cluster of properties. This means that to settle the question of properties, one will not only need to determine (say) whether Venus could have been cube-shaped and whether it could have been a moon. They will also need to determine whether Venus could have been both a cube-shaped thing and a moon all at once. Thus, 'Venus could have been a cube-shaped moon' is also a perfectly acceptable answer to the question of properties.

The examples in the previous paragraphs are claims about the merely possible properties of a particular thing, namely Venus. But the question of properties is also interested in whether some member of a given class could have had different properties than the ones it has. Thus, the claim 'some planet (whether it is Venus or another one) could have been cube-shaped' is a perfectly acceptable answer to the question of properties. In fact, discussing a specific class is not even required. The claim 'something (whatever it is exactly) could have been cube-shaped' is also a candidate answer to the question of properties. Notice that this category of answers to the question of properties is particularly important from a philosophical perspective. When an answer to the question of properties appears in a philosophical context, it is typically concerned with things belonging to a certain class (human beings, material objects, etc.) or even with things in general, rather than with a particular thing. Philosophically, the interesting claim is not that Socrates could have failed to be human, but that some human could have failed to be human.

It may be useful to say a word about the notion of properties (and relation) at play in my text. In what follows, I assume that there are properties. Here, 'there are' is used in the same way as it is used in 'there are planets', 'there are people' and 'there are numbers'. Some things are properties, just like (presumably) some things are planets, people, and numbers. We refer to a particular property just like we refer to any other thing, by using a name — e.g. 'redness', '*being cube-shaped*' — or a definite description — e.g. 'the property that all and only planets have'. And, of course, an expression intended to denote a property may fail to do so.

While I assume that there are properties, I do not assume what properties there are. (I make an exception to this rule by assuming that there is a particular binary relation, the identity relation. More on this

below.) In particular, I stay neutral on whether there is a property for any English predicate, or for any set of things. I do not either assume what properties are. In particular, I do not assume or deny that a property is located in spacetime, that it is identical to a set of things, that its existence depends on the things having this property, or that it is mind-dependant.

2. Being

What could have been? Call this the question of being. The question of being is concerned with what could have populated the universe, with what could have made up reality. Thus, for example, the claim that Venus could have failed to be is a candidate answer to the question of being. But, like the question of properties, the question of being is not only concerned with particular things. It is also concerned more generally with things belonging to a certain class. For example, the claim that some planet (whether it is Venus or another one) could have failed to be is a perfectly acceptable answer to the question of being. And the question of being may also be asked about things in general. Thus, the claim 'something (whatever it is exactly) could have failed to be' is also an acceptable answer to the question of being.

All the candidate answers to the question of being I just considered are claims that something could have *failed* to be, i.e. claims that something is and possibly is not. But, the reader may wonder, isn't the question of being also concerned with claims that something could have been, i.e. with claims that something is not and possibly is? In principle at least, the answer is affirmative. However, in practice, this aspect of the question of being is wholly uninteresting because answering it is trivially easy. Everything is. Therefore, it is not the case that there is something that is not. And so, *a fortiori*, it is not the case that there is something that is not, but could be.

It is worth considering how the question of being relates to the debate between the views known in the literature as actualism and possibilism. Roughly put, the debate is concerned with whether or not '*being is bifurcated*' (Menzel, 2020, p. 2), with whether things should be divided into two categories, according to their mode of being. Exactly how the debate is characterized depends on what these categories are taken to be.

In a classical version of the debate, the issue is whether being is divided between the things that are not actual but could be actual, and all the other things. Menzel (2020, pp. 8–10; see also Schnieder, 2007) traces back this distinction to (at least) Bolzano and claims that it is at the centre of the actualism-possibilism debate in the modern literature (e.g. in Kaplan, 1975; Plantinga, 1976; Adams, 1981). Given this characterization, the debate revolves around the following central claim:

(1) There is something that is not actual, but could be actual.

If this is how the actualism-possibilism should be construed, it is largely irrelevant to the question of being. At any rate, neither (1) nor its negation implies an answer to the question of being. If anything, (1) and its negation appears instead to be candidate answers to the question of properties. Actuality, in this context, seems to be treated as a feature of things. If so, determining whether there are things that lack this feature and could have it – just like determining whether there are some things that lack redness but could be red – will provide us with a partial answer to the question of properties.

It should be noted that it is not completely clear that (1) is exactly what is at stake in the possibilism-actualism debate. Indeed, often, the question is not whether there are things that could be actual, but instead whether *it is possible* that there are things that could be actual. Possibilism is not typically formulated as the view that (1) is true, but rather as the weaker view that *possibly* (1) is true (Menzel, 2020, p. 10). Even if this is right, it does not affect my main point that the debate between possibilism and actualism is largely irrelevant to the question of being.

The fact that the question of being is largely orthogonal to the debate between actualism and possibilism becomes even more apparent if we consider one of its alternative versions in which the notion of actuality is replaced by the notion of concreteness (Linsky & Zalta, 1994). The issue here is whether being is divided between things that could be concrete even though they are not, and all the other things. Thus, in this version of the debate, the central claim is

(2) There is something that is not concrete, but could be concrete.

When the debate is laid out in those terms, it is easy to see that it is really a debate about the merely possible features of things, rather than a debate about what things there could be. Like redness, concreteness – however it is characterized exactly – is a feature of things.

By contrast, the debate between necessitism and contingentism (Williamson, 2013) is relevant to the question of being. Roughly speaking, this debate is concerned with whether it is necessary or contingent what things there are. Clearly, determining whether this is the case will also yield an answer (at least a partial one) to the question of being. For example, Williamson maintains that (necessarily) everything is necessarily something. This clearly provides an answer to the question of being: nothing (not Venus, not a planet, not anything else) could have failed to be.

3. Properties and Being

There are some important connections between the question of properties and the question of being. Under seemingly true assumptions, an answer to the question of being implies an answer to the question of properties. For example, consider the claim that Venus could have failed to be. As we saw in the previous section, this claim is a candidate answer to the question of being. However, it is a standard assumption that being can be expressed in terms of having the identity relation to something. Thus, 'Venus could have failed to be' becomes 'Venus could have failed to entertain the identity relation to something'. This latter claim is about a relation Venus could have lacked and is therefore an answer to the question of properties. In fact, talk of identity need not even enter the picture. For example, it is *prima facie* plausible that Venus could have failed to be iff Venus could have failed to be a material object. Assuming that this holds, we have a clear connection between the question of being and the question of properties.

This tight connection between the question of being and the question of properties suggests that it is appropriate to treat both questions at once, under the umbrella of the modal question 'what could have been otherwise?'. This suggestion is reinforced by the fact that the modal question is more than simply the sum of these two questions. Any answer to the question of properties is an answer to the modal question. Similarly, any answer to the question of being is an answer to the modal question. But an answer to the modal question 'what could have been otherwise?' need not be an answer to the question

of properties or an answer to the question of being. Consider a disjunction whose first disjunct addresses the question of properties and whose second disjunct addresses the question of being. This disjunction is neither an answer to the question of properties, nor an answer to the question of being. Yet, it will still be an answer to the modal question.

The point is important. Some (philosophical) debates are set up in such a way that it is relevant to ask whether something could be the case, but it is irrelevant to ask how things could be or what things there could be. To better see the kinds of debates I have in mind, consider the claim that the Solar System could have contained no terrestrial planet at all. If this claim is true, it may be because Venus and the other terrestrial planets could have failed to instantiate some of their properties. For example, they could have been gaseous planets, therefore lacking the property *being terrestrial*. Or they could have been captured by the gravity of Jupiter, therefore lacking the property *being a planet*. But there is a second option: if the claim that the Solar System could have contained no terrestrial planet is true, it may also be simply because Venus and the other planets could have failed to be.

If one goes with the first option, they will provide an answer to the question of properties 'how could things have been?'. If one goes with the second option, they will provide an answer to the question of being 'what could have been?'. But to vindicate the claim that the Solar System could have been devoid of terrestrial planets, one need not choose between these two options. Indeed, it is enough to maintain the following disjunction: Venus and the other terrestrial planets could have failed to instantiate the relevant properties, *or* they could have failed to be. So, one may provide an answer to the modal question 'what could have been otherwise?' without having to take a stance on the question of properties or the question of being.

Of course, the claim that the Solar System could have contained no terrestrial planets was only used as a toy example. As such, it is not particularly philosophically interesting. But the point just made straightforwardly applies to more philosophically significant claims, such as the view that there could have been a society devoid of moral values, or that there could have been phenomenal zombies — creatures materially identical to humans but which do not feel anything.

4. Possibility

The modal question ‘what could have been otherwise?’ is a question about what is merely possible. But the question is not concerned with any kind of possibility. To begin, the kind of possibility at play in the question is objective possibility, not epistemic possibility (Williamson, 2016). When we ask whether Venus could have been cube-shaped, we are clearly not expressing doubt regarding the fact that Venus is not cube-shaped. In fact, in most contexts, the question implies that Venus is not cube-shaped.

Even within the realm of objective modality, the modal question is only concerned with a particular kind of modality. For example, suppose that ‘Venus could have been cube-shaped’ is put forward as a candidate answer to the modal question. In this context, the sentence does not — or at least not primarily — mean that the laws of nature allow for Venus to have the property *being cube-shaped*. Nor does it say that it is compatible with the concept of Venus that Venus has this property, or that logic does not rule out ‘Venus is cube-shaped’. Instead, it is more accurate to present the modal question as a question about compatibility with the nature or essence of things. When we ask whether Venus could have been cube-shaped (in the sense of ‘could’ relevant to the modal question), we are asking whether it is compatible with the nature of things that Venus has the property *being cube-shaped.*

Still, even this characterization is far from being satisfactory. To start, compatibility is itself a modal notion. Thus, just as we have various kinds of possibilities, we have various kinds of compatibility. Therefore, a characterization of the kind of possibility at play in the modal question in terms of compatibility is bound to be somewhat circular. Even ignoring this, it is far from clear what the notion of compatibility with the nature of things amounts to exactly. When we say that it is compatible with the nature of things that Venus is cube-shaped, what are the things whose nature is relevant to the case? (Venus is presumably among those. But is it the only one?) Also, what is the meaning of ‘the nature of things’ in this context? And anyway, what is it for something to be compatible with the nature of things?

I will address these questions in due course (§32). For now, it is enough to recognize that there is no straightforward, uncontroversial, and readily available analysis of the kind of possibility at play in the modal question. This is hardly surprising. The modal question ‘what could have been otherwise?’ is pre-theoretical, in the sense that it can be asked and understood even without a precise theory of modality.

This, I think, is part of the reason why the question is more interesting to the philosopher than 'what is compatible with the laws of nature?', 'what is compatible with the principles of logic?' or 'what is compatible with the definitions of our language?'. Indeed, once these questions have been understood as suggested above, they largely fall outside the purview of philosophy. Instead, they respectively become questions for the physicist, the logician, and the lexicographer. The takeaway is that one should not worry too much about the fact that we do not yet have a satisfactory analysis of the kind of possibility at play in the modal question. Granted, the idea that things could be otherwise than they are, in the relevant sense of 'could' is not completely clear. But it is clear enough to get us started.

Is the kind of possibility at play in the modal question metaphysical possibility? Unless more is said about what metaphysical possibility is, this question has no definite or interesting answer. The answer is affirmative if metaphysical possibility is simply taken to be the kind of objective possibility commonly at play in philosophical arguments, especially arguments claiming that something x is distinct from something y. For example, consider the following well-known style of argument: it is not possible for a statue to be sphere-shaped; it is possible for the piece of clay constituting the statue to be sphere-shaped; therefore, since identicals must have exactly the same properties, the statue is not the piece of clay. The kind of possibility at play here is the same that is at play in the modal question. It is the kind of possibility having to do with the nature of things, rather than with laws of nature, concepts, linguistic definitions, or principles of logic. What matters here is not (or at least not fundamentally) that the piece of clay having the property *being sphere-shaped* is compatible with the laws of nature, or with the definition of 'piece of clay'. Rather, what matters is that the piece of clay being sphere-shaped is compatible with the essence of the piece of clay (and the property *being sphere-shaped*). The kind of possibility at play in these arguments is often explicitly categorized as metaphysical possibility, although exactly what is meant by metaphysical possibility in those cases is rarely made explicit.

However, 'metaphysical possibility' is sometimes used differently. For example, in the so-called nesting model (Mallozzi et al., 2023), the term denotes a kind of possibility between nomic and logical possibilities (Figure 1.1). So, under this usage, it is presupposed that any nomic possibility is also a metaphysical possibility, although the converse may not hold. Similarly, the term has been used in such

a way that ‘a proposition is metaphysically possible if and only if it has at least one sort of objective possibility’ (Williamson, 2016, p. 455). If ‘metaphysical possibility’ is used in either of these ways, it is not clear whether it captures the kind of possibility at play in the modal question. Therefore, we should not start our investigation by assuming that ‘could’ in the modal question expresses metaphysical possibility in this sense. In particular, we should allow that ‘Venus is cube-shaped’ is nomically possible (or that it has some sort of objective possibility), even though it is not compatible with the nature of things that Venus is cube-shaped. Of course, it may turn out that this is not a viable option. Our investigation may yield that it is nomically (or objectively) possible that Venus is cube-shaped only if it is compatible with the nature of things that Venus is cube-shaped. But this is something we may discover, not something we should presuppose.

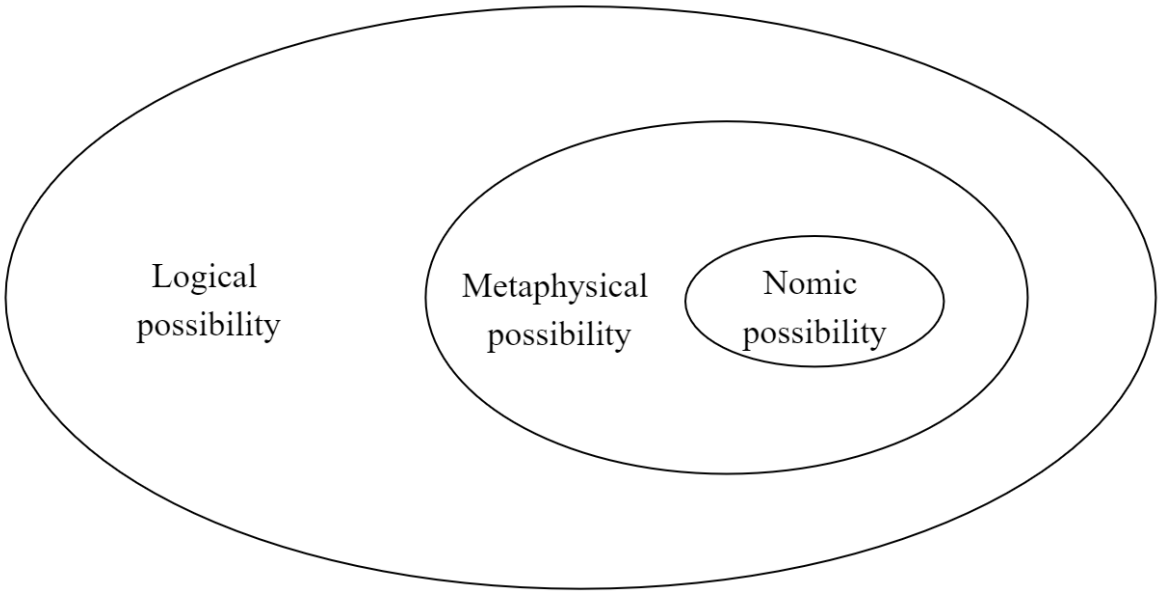

Figure 1.1. The nesting model of possibility.

5. Metaphysics and Ontology

An answer to the question of properties does not only claim that it is possible for something to have (or lack) a particular property. It also claims that the thing in question lacks (respectively, has) this property. Sometimes, this latter claim is made fully explicit in the answer, e.g. in ‘Socrates could have been a farmer, rather than a philosopher’. Sometimes, the claim about how things are is a bit more subtle e.g.

in ‘Venus could have failed to be a planet’. And sometimes, this claim is fully implicit e.g. when one says ‘there could have been life on Mars’, leaving the claim that there is in fact no life on Mars as a conversational implicature. This point has an important consequence. To determine the correct answer to the question of properties, one should not only focus on what is possible. They should also consider what is. And so, to correctly answer the question of properties — and, more generally, the modal question — one typically needs a (partial) answer to the metaphysical question ‘how things are?’.

Unsurprisingly, this reasoning can also be applied to the question of being. Proper answers to the question of being do not only communicate information about what could fail to be. They also tell us about what is. When it is used as an answer to the modal question, the sentence ‘Venus could have failed to be’ does not only convey that possibly Venus is not. It also conveys that Venus is. Thus, to properly answer the question of being — and, more generally, the modal question — one typically needs a (partial) answer to the ontological question ‘what is there?’.

Therefore, despite its name, the modal question ‘what could have been otherwise?’ is not only a matter of modality, a matter of what is possible. The question is also a matter of metaphysics and ontology, a matter of what is and of how things are. At first glance, this seems to be bad news for our prospect of answering the modal question. Indeed, there is much disagreement (to put it mildly) about what the correct answers to the metaphysical and ontological questions are supposed to be. For example, there is a large and lively philosophical debate regarding the ontological question. Even if we focus on material objects alone, the range of answers to the question ‘what is there?’ is dizzying. On one extreme, we have the nihilist views according to which there are mereological simples such as fundamental particles, but nothing is composed of these simples — so that properly speaking, there is no planet and no human being. On the other extreme, we have the universalist view according to which for any plurality of things, there is an object composed of these things — so that there is not only Venus and Socrates but also something composed of Venus and Socrates. Given this wide range of views, if our knowing the correct answer to the modal question requires that we first know the correct answer to the ontological question, it looks like our chances of answering the modal question are very low.

Fortunately, not every answer to the modal question requires taking a stance on the ontological or metaphysical question. In particular, the answer defended in the present text, 'nothing could have been otherwise', can for the most part be upheld independently of any metaphysical or ontological views. For example, it does not matter for the arguments presented in favour of this answer whether one adopts nihilism, universalism, or an intermediate view. Of course, one's view regarding ontology does matter for the relevance of the particular examples discussed here. If nihilism is right and there are no planets, the question 'is there a planet such that it is possibly cube-shaped?' is uninteresting as far as the modal question is concerned. According to the nihilist, there are no planets that is possibly cube-shaped. But this has nothing to do with the modal profile of planets, or with modality in general. According to the nihilist, the reason there are no planets that could be cube-shaped is the same as the reason there is no planet that is cube-shaped (or sphere-shaped, or habitable, etc): there are no planets in the first place. Still, nothing in the arguments to be presented thereafter rests on the choice of a particular example. In particular, the previous question can be turned into a question more appropriate to a nihilist framework such as 'is there a plurality of atoms arranged planetwise such that it is possibly cube-shaped?' or 'is there something (some mereological simple) such that it could be a cube-shaped planet?'.

6. Modal Epistemology

Unsurprisingly, some portion of the literature on the epistemology of modality is directly relevant to the modal question. I say 'some portions of', because much of the epistemology of modality does not address the modal question, but rather presupposes a partial answer to the question. Indeed, one of the central questions in the epistemology of modality concerns the knowledge of mere possibilities, the knowledge that things could have been otherwise. For example, how do we know that I could have been standing rather than sitting in this instant? How do we know that Neptune could have been discovered in 1847, rather than in 1846? Another of the central questions in the epistemology of modality concerns the knowledge of necessity, the knowledge that some things could not have been otherwise. For example, how do we know that I could not have been a prime number, or that Neptune could not have been different from itself? Under the standard assumption that one cannot know the false, these

questions presuppose a partial answer to the modal question. Asking ‘how do we know that I could have been standing?’ presupposes that I could have been standing.

However, questions about knowledge of mere possibilities and necessities are not the only ones in the epistemology of modality. Some questions are about what evidence we have for mere possibilities and necessities. For example, rather than asking ‘how do we know that I could have been standing?’ one may ask ‘what evidence do we have that I could have been standing?’. Contrary to the former question, the latter question does not presuppose that I could have been standing. Note that in practice, the distinction is blurrier than I make it seem here. Even though a theory in modal epistemology may explicitly answer a question about our knowledge of some fact, it will often say something interesting regarding what evidence we have for this fact.

To answer the question ‘what evidence is there that I could have been standing?’ is of course not the same as answering the modal question, or even part of the modal question. In principle, one may maintain that there is evidence that I could have been standing, but remain neutral about whether I indeed could have been standing. Yet, in practice, one will often accept that, *if some specific conditions are satisfied*, there being evidence that I could have been standing warrants the conclusion that I could have been standing.

To see how this works, consider the classic view according to which conceivability is evidence for possibility (e.g. Yablo, 1993). According to this view, since it is conceivable that Socrates was a farmer, there is evidence that Socrates could have been a farmer. But this view has been pushed further. It has been claimed that under certain conditions, conceivability *entails* possibility (Chalmers, 2002, 2010, pp. 143–148). So, assuming these conditions are met, the fact that it is conceivable that Socrates is a farmer is not only evidence that Socrates could have been a farmer. It also warrants the conclusion that Socrates could have been a farmer. And so, the view provides a partial answer to the modal question.

In this chapter, I have presented the relations between the modal question ‘what could have been otherwise?’ and other philosophical questions. Mapping the internal structure of the modal question, I

have said that answers to the question of properties ‘how things could be?’ and answers to the question of being ‘what things could there be?’ are also answers to the modal question, even though the converse does not hold. Mapping the external context of the modal question, I have made clear that it is not only concerned with what is possible, but that it is also concerned with what is (the ontological question) and with how things are (the metaphysical question).

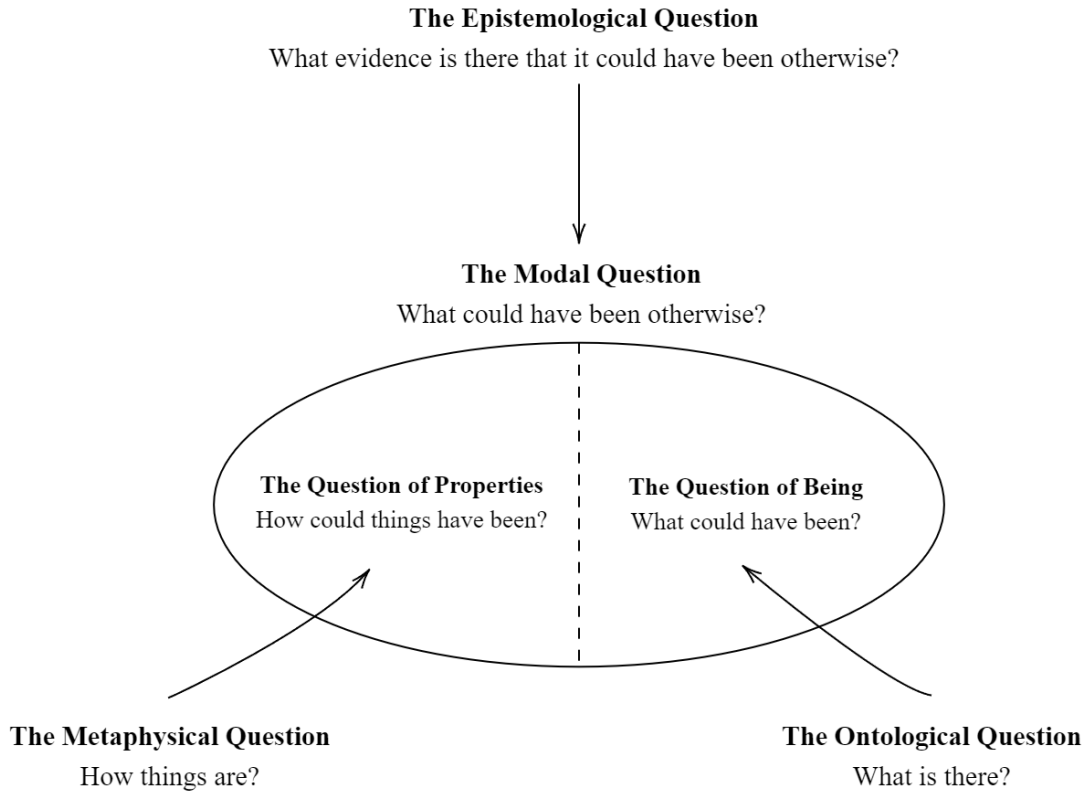

Figure 1.2. The modal question and its neighbours. The arrows represent a partial dependence of a question on another.

II. Methodological Considerations

This works aims to answer the modal question ‘what could have been otherwise?’. However, it is not clear exactly what counts as an answer to the modal question, how the proposed answers to this question differ from each other, and how these answers are to be assessed. To overcome these challenges, it is useful to take a step back and ask more generally how we can identify what should count as an answer to a philosophical question and how we can decide whether a candidate answer is the correct one.

I start this chapter by showing that any philosophical question is linked to a number of problems, where a problem is understood as the task of determining which are the true statements among a given set of statements (§7). A candidate solution to a problem is then naturally defined as a subset of this set, and the correct solution is defined as the set of true statements among this set (§8). I then discuss how we can determine whether a given statement is true, and thus how we can solve a particular problem (§9). Finally, I address the worry that this dialectical setting is skewed in favour of my view that things could not have been otherwise (§10).

7. Problems

By ‘philosophical questions’, I mean questions such as the following: ‘what is the pious?’, ‘under what conditions do some things compose something?’, ‘is it morally acceptable for someone to force their authority over someone else?’, ‘do holes exist?’, ‘is knowledge justified true belief?’, ‘is beauty mind-independent?’, ‘what evidence is there that something is possible?’. These questions, although rather crudely and naively formulated, are all distinctively philosophical. Each of them is related to at least one important area of philosophy and each has been discussed at length at some points in the history of philosophy. In that sense, the modal question ‘what could have been otherwise?’ is a philosophical question.

When one attempts to answer a philosophical question, one produces statements, i.e. sentences that are true or false. For example, in trying to answer the question 'what is the pious?', one may produce the statement 'the pious is the gods-beloved'. Thus, given a philosophical question, we can identify some statements that are potential answers to this question. For example, potential answers to 'what is the pious?' include many statements of the form 'the pious is *a*', where *a* stands for a noun phrase such as 'the gods-beloved', 'the gods-pleasing' or 'the care of the gods'. This remark allows us to introduce the following idea: a problem raised by a philosophical question is the task of determining what are the true statements among a set of statements that are potential answers to this question.

Before I go on and refine this account, a clarification is in order. In English, the word 'problem' is used in at least two ways. In one sense, a problem is an obstacle, an issue to be overcome. It is this sense that is at play in such expressions as 'I have a problem with the new policy' or 'deflation is a problem for economic growth'. In another sense, a problem is the task of overcoming an obstacle or removing an issue. This is the sense at play in 'I am already working on the next problem', 'there will be three geometry problems in the test', and 'this is a difficult problem'. It is the latter sense, not the former one, that is at play in the present account.

So, a problem raised by a philosophical question is the task of determining what are the true statements among potential answers to this question. For example, one of the problems raised by the question 'is knowledge justified true belief?' is the task of determining whether the statement 'knowledge is justified true belief' is true. Similarly, one of the problems raised by the question 'what is the pious?' is the task of determining which statements of the form 'the pious is *a*' are true. (Of course, in practice, the set of relevant statements will be more restricted than this. Although 'the pious is the third planet from the Sun' is of the right form, it will hardly be a candidate answer to the question 'what is the pious?'.)

Notice that under the proposed account, a single philosophical question will typically raise multiple problems. For example, another problem raised by the question 'what is the pious?' is the task of determining whether 'the pious is the gods-beloved' is true. Since this task is not the same as determining what statements of the form 'the pious is *a*' are true, this illustrates the fact that a single question can raise multiple problems.

This also illustrates that problems are very fine-grained. As defined, a problem is always associated with some statements, namely those statements that are candidate answers to the question and whose truth value has to be determined. Let us call a statement associated with a problem in this way a problem case for this problem. Since every problem is associated with at least one case, every problem is also associated with a non-empty set of cases. This set is what distinguishes a problem from any other. That is, the identity of a problem depends on the set of its problem cases. More precisely: if P is the set of cases for a problem x and P' is the set of cases for a problem y, then $x = y$ iff $P = P'$.

It is desirable that problems are finely individuated in this way. Indeed, the strategies one may use to determine whether 'the pious is the gods-beloved' is true are not necessarily the same as the strategies used to determine which statements of the form 'the pious is a' are true. And one may complete the former task without completing the latter. So, we should better have a way to keep track of these differences. Of course, these differences are sometimes irrelevant. For example, the strategies used to determine whether the statement 'knowledge is justified true belief' is true are the same as those used to determine whether 'knowledge is not justified true belief', and whoever achieves the former task also achieves the latter. Thus, in this case, it is not strictly required to maintain that there are two problems rather than one. Still, doing so is not harmful and allows for a notion of problems that is both simple and general.

Problems are even more fine-grained than they appear at first glance. Notice that the set of problem cases is a set of statements. Although I have not precisely defined the notion of statements, I have said that a statement is a sentence that is true or false. This simple characterization hints at an important fact: since the truth value of a sentence depends on its meaning, statements are to be identified not only through their form but also through their meaning (and thus, through the meaning of their components). So, a single string of characters may correspond to two distinct statements. For example, the string 'Mars is spherical' corresponds to at least two distinct statements depending on whether 'Mars' denotes the fourth planet from the Sun or the Roman god of war.

Because of this, it may turn out that there are even more problems than may seem at first. For example, suppose that the string 'knowledge is justified true belief' corresponds to two distinct statements. (This

may be the case if ‘knowledge’ is used ambiguously to denote two distinct things, as is the case with ‘Mars’ in the above example.) Suppose further that each of these two statements is proposed as an answer to the question ‘is knowledge justified true belief?’ (This may be the case if the two things denoted by ‘knowledge’ are similar, contrary to what is the case with ‘Mars’ in the above example.) Then, we can identify at least two problems raised by the question ‘is knowledge justified true belief?’, one for each of the two statements corresponding to the string ‘knowledge is justified true belief’.

Again, it is desirable that problems are finely individuated in that way. This allows us to make sense of a family of views, sometimes called deflationist views. According to such a view, some particular philosophical debate (e.g. the debate about material composition, the debate about the mind-body problem, etc.) is sterile. This is because each participant in the debate fails to recognize that they are trying to solve a different problem than their opponents, so that participants in the debate end up ‘talking past each other’. Note, however, that while the present account makes room for deflationist views, it does not vindicate these views. If one is able to clearly distinguish between the statements produced as answers to a problem (especially in the case where multiple statements correspond to a single string), then there is no risk of confusing problems.

We just saw that every problem raised by a philosophical question is associated with a set of statements, namely the set of its problem cases. At this point, the reader may wonder whether every set of statements is associated with a philosophical problem, i.e. whether every set of statements is a set of problem cases. My answer is a careful ‘no’. The set of all statements of the form ‘the pious is *a*’ is a set of problem cases, and, presumably, so is any of its non-empty subsets. By contrast, the union of this set and the {‘knowledge is justified true belief’} is not a set of problem cases: the task of determining for each statement in this set whether it is true is not a problem.

I am not sure where to draw the line between those sets of statements that are associated with a philosophical problem and those that are not. As a starting point, notice that for a statement to be a problem case, it must be a candidate answer to some distinctively philosophical question. This does not bring us very far, however. Indeed: what is a candidate answer to a distinctively philosophical question anyway?

Here, I am tempted to adopt a constructivist view: a statement is a candidate answer to a philosophical question iff the statement is taken to be a candidate answer to a philosophical question by someone (or some philosopher, or all members of a community of philosophers, or all people sharing a common set of assumption and methodological principle, etc.). Thus, according to such a view, the reason a set of statements is a set of problem cases is because someone takes it to be so. Note that this constructivist account is compatible with the idea that some philosophical problems are better — clearer, more interesting, easier to solve, etc. — than others.

I do not know whether this constructivist account will hold up under scrutiny. Whether it does is irrelevant. For my purpose, it does not matter exactly what statements are candidate answers to a philosophical question and so what sets of statements are sets of problem cases. I am not looking for a way to distinguish those things that are philosophical problems from those things that are not. Rather, I am looking for a way to clearly identify problems that are known to exist. For this purpose, the definition of a problem introduced above is enough.

So, a problem raised by a philosophical question is the task of determining what true statements are in the set of problem cases for this problem. This immediately suggests that to clearly express a problem, all that is required is to define its set of problem cases. This set can be defined in the same way any other set is defined: either by listing its elements (e.g. the set whose sole member is 'the pious is the gods-beloved') or by providing an intensional description (e.g. the sets of all statements of the form 'the pious is *a*').

8. Solutions

This account of problems suggests the following account of solutions. Given the philosophical problem identified by the set *P* of cases, a potential solution to this problem is a subset of *P*. The correct solution to the problem is the set of all true statements in *P*. It immediately follows from this that every problem has exactly one correct solution. If the set of problem cases contains no true statements, this solution is the empty set. To solve a problem is to complete the task of determining what are the true statements among the cases for this problem. In other words, to solve a problem is to determine what its solution is.

When attempting to solve a problem, one should not assume a solution to this problem. In fact, one should not even assume a partial solution to this problem. That is, given a problem identified by a set P of cases, one cannot assume the truth value of a subset S of P. For if they do so, they are not solving the problem identified by P anymore. Rather, they are solving a different problem, namely one corresponding to the set $P - S$. The point is important in the present context. The strategies that can be used to determine the truth value of (say) 'Venus could have been a farmer' depend on whether it is already assumed that some things could have been otherwise.

Notice that there is an important difference between determining what the solution to a problem is and merely defining this solution. Since a solution to a problem is just a set of statements, one may define a solution as one may define any set: by listing its members or by giving an intensional description. Thus, defining the solution to a problem is not a very involved affair. In particular, defining a solution does not require knowing, justifying, or even believing that the defined set is indeed the solution to the problem. One can define the solution to a problem without even knowing it. And if a set of cases is small enough, defining the solution to the corresponding problem can be achieved simply by defining each subset of the problem. By contrast, to solve a problem, one must not only define its solution, but also make sure that the defined solution is indeed the correct one. In other words, to solve a problem requires not only to define a set which must be the set of all true statements in the problem, but also to ascertain that this set is indeed the set of all true statements in the problem.

9. Evidence

How are we to solve a problem? Given a set of problem cases, how are we to determine what are the true statements among this set? The answer, in short, is that we must consider for each member of P if there is evidence for it (or against it), and if this evidence is enough to warrant the conclusion that the statement is true (or false). Thus, the notion of evidence — and in particular the notion of evidence warranting the conclusion that a statement is true (or false) — will play an important role in my discussion of the modal question. It is therefore worth saying a bit more about it. Of course, my goal here is not to provide a theory of evidence. Doing so would require a much more careful discussion and

would bring us too far from the modal question. Rather, my aim here is only to clarify what I mean by 'evidence', without attempting to provide an analysis of the notion.

There is evidence for a statement p iff there is at least one piece of evidence for p, i.e. iff at least one thing is evidence for p. Roughly, a piece of evidence for a statement p is something that gives us a reason to believe that p, a ground for the belief that p. Can we be more specific regarding the kind of things at play here? If we wish to find whether there is evidence for p, it would be good if we could restrict our search to a specific class of things. The rather obvious suggestion is to restrict our attention to statements: if something x is evidence for a statement, then x itself is a statement.

Does this conditional hold? At first glance, the answer is negative. Surely, a pawprint is evidence that there is a cat, even though a pawprint is not a statement. Yet, on second look, the objection is less convincing than it appears. Several arguments can be advanced for the view that pieces of evidence must be statements (Williamson, 2000, pp. 194–200). Perhaps the simplest and also the most compelling of these arguments is the following. If something *x* is evidence for *p*, then *p* can always truly be said to be consistent or inconsistent with *x*. But consistency and inconsistency are relations holding between statements (or, if you prefer, they are properties of sets of statements). Therefore, *x*, like *p*, must be a statement.

Even ignoring these arguments, it seems that, for our purposes at least, very little is lost if we maintain that something is a piece of evidence only if it is a statement. To see why, consider the view according to which a pawprint is evidence that there is a cat. Someone maintaining this view has little reason to deny that the statement 'there is a pawprint' is also evidence that there is a cat. But once this has been granted, one has little reason to keep their initial view according to which the pawprint itself (and not only the statement) is evidence for p. The pawprint is not a better or stronger piece of evidence than the statement 'there is a pawprint'. And maintaining that the pawprint is a piece of evidence in addition to the statement makes no difference to the strength of the evidence. The pawprint and the statement do not provide stronger evidence for 'there is a cat' if they are considered together than they provide if they are considered individually. Given this, we can safely assume that something is a piece of evidence only if it is a statement. Perhaps such an assumption is unwise if one aims for an analysis of the notion of

evidence. But since such an analysis is not our aim, we can favour dialectical convenience over metaphysical accuracy.

Before going on, a terminological remark is in order. The reader may have noticed that in the above discussion, I used both the expressions 'evidence *for*…' and 'evidence *that*…'. The former expression is suitable when one speaks in the formal mode, i.e. about statements. In that case, the blank space is supposed to be filled by the name of a statement. The latter expression, 'is evidence that…', is suitable when one speaks in the material mode, i.e. about facts. In that case, the blank space is supposed to be filled by a statement. As far as the present discussion is concerned, switching between the formal mode and the material mode presents no particular issue. Evidence that p is evidence for 'p'. Conversely, evidence for p that 'p' is true. Since the conversion from one mode to another is straightforward and always available, I freely use whatever mode is the most natural in a given sentence, to maximize clarity of expression.

Similarly, I will sometimes talk about pieces of evidence in the material mode rather than in the formal mode. Given our assumption that only statements can serve as evidence, the blank space in '…is evidence' should, properly speaking, be filled by the name of a statement. But it is sometimes clearer and more natural to fill this blank with an expression referring to the fact expressed by this statement. For example, assume that 'I see a cat' is evidence that there is a cat. The same idea is naturally expressed by 'the fact that I see a cat is evidence that there is a cat' or 'my seeing a cat is evidence that there is a cat'. I will sometimes use such expressions, where talk of statements is awkward or cumbersome. But one should remember that this is only a shortcut. Properly speaking, pieces of evidence are not facts, but statements.

At what condition is a statement e evidence for p? A minimal requirement is that e is true. 'There is a pawprint' is evidence that there is a cat only if there is indeed a pawprint. But, of course, e must also satisfy other conditions. A bit more precisely, e must stand in some relation (or perhaps in one of several relations) relative to p. I will not attempt here to say what this relation is, for this would steer us away from our present concerns and into a theory of evidence. However, to get a feel for the kind of relation at play here, it is worth considering a particular example.

According to a popular account of evidence (Carnap, 1950/1962) in the broad Bayesian epistemology tradition (Titelbaum, 2022), the relevant relation between e and p can be captured in probabilistic terms. More precisely, under this account, e is evidence for p iff e raises the probability that p, i.e. iff the probability that p given e is greater than the probability that p, i.e. iff $P(p) < P(p|e)$. To see how this works, suppose that Sam is one of a hundred people, twenty of which are librarians. Suppose also that a quarter of the people wear glasses, ten of which are librarians (so that librarians are overrepresented among people wearing glasses). Here, the probability that Sam is a librarian is $P(p) = 20/100 = 0.2$. However, the probability that Sam is a librarian *given* that Sam wears glasses is $P(p|e) = 10/25 = 0.4$. Thus, in this setting, 'Sam wears glasses' is evidence for 'Sam is a librarian'.

This is only one of many proposed accounts as to what the relation between e and p must be for e to be evidence that p. Notice that this account is general: it is supposed to hold for any statement e and p. (To say that the account is general is not to say that it is generally applicable. Sometimes, there is simply not enough information for a computation of the sort just presented.) But not every account of evidence needs to be as general as this. If one is only interested in a particular set of statements P, such as a set of cases for a problem, one may be content with an account that only states the conditions at which a statement e is evidence for a member of P. It is with specific accounts of this kind that I will deal in my discussion of the modal question.

So, if a statement e is evidence for a statement p, then (i) e is true and (ii) e stands in the right kind of relation with p, whatever this relation is exactly. Often, the first condition is implied by the second. For example, 'Sam wears glasses' hardly raises the probability that Sam is a librarian if it is false. Thus, the two conditions are often treated together. Yet, it is worth keeping the distinction between the two conditions in mind, because it corresponds to a distinction between two strategies that one may use to attack the claim that e is evidence for p. The committed astrologer insists that Venus being in conjunction with Mars is evidence that I will get in a fight today. The wiser astronomer disagrees. The astronomer has two ways to object to the astrologer's claim. They may deny that Venus is indeed in conjunction with Mars. But they may also maintain that even if 'Venus is in conjunction with Mars' was true, this sentence would not be evidence that I will get in a fight today. The first objection is a matter

of astrology. The second, by contrast, is a matter of epistemology. Clearly, each requires a very different approach than the other.

Unsurprisingly, this distinction is also relevant when it comes to the task of finding evidence for a statement p. Indeed, this task can be broken down into two steps. First, find a statement e such that if e is true, e is evidence for p. Second, determine whether e is true. (The first step precedes the second only conceptually. In practice, we often establish the truth of a statement first, and only then ask whether it is evidence that p.)

Suppose that we have determined that there is evidence for p. That is, we have found a statement e that is evidence for p. Can we thus maintain that p is true? Of course not. Consider again the situation about Sam discussed above. We saw that according to a certain account of evidence, the fact that Sam wears glasses is evidence that Sam is a librarian. Yet, even if we assume that this account of evidence holds, we cannot conclude that Sam is a librarian. In fact, doing so would be exemplifying a paradigmatic case of irrationality (Tversky & Kahneman, 1974). If we must conclude something, it should be that Sam is not a librarian: even taking into account the fact that Sam wears glasses, the probability that Sam is a librarian is still inferior to the probability that they are not a librarian.

So, if we want to conclude that p is true, we must not only find a statement e that is evidence for p. We must also ensure that e is evidence enough, i.e. we must ensure that e warrants the conclusion that p. The idea here is that e must satisfy some constraints in addition to those that make it evidence for p. Again, I will not take a stance on what these constraints must be here. If one is working within a probabilistic framework, one suggestion may be that e must raise the probability of p above a certain threshold. More generally, for e to warrant the conclusion that p, it must presumably be the case that e provides more (stronger, better, etc.) evidence for p than there is evidence for the negation of p. In any case, the result is that the set of statements warranting p is typically much smaller than the set of statements that are evidence for p.

Here, a common pattern is the following: if e is evidence for p, then some conjunction of which e is a conjunct warrants the conclusion that p. We already have seen an example of this pattern above (§6).

According to some views in modal epistemology, evidence that $\Diamond p$ is provided by the fact that $\Diamond p$ is conceivable (or rather, to be precise, by the true statement 'it is conceivable that $\Diamond p$'). But this fact alone is not supposed to warrant the conclusion that $\Diamond p$. Rather, this conclusion is supposed to be warranted by the fact that p is conceivable together with some other facts, e.g. the fact that no complicating factor pushes back against the conceiving (Yablo, 1993, p. 32), the fact that p cannot be ruled out *a priori* by ideal rational reflection, etc. So, in this instance, what warrants concluding that $\Diamond p$ is not 'it is conceivable that p', but a conjunction such as 'it is conceivable that p and no complicating factor pushes back against the conceiving and …'.

When one is attempting to solve a philosophical problem, one should be mostly concerned with those pieces of evidence that warrant concluding what they support. That is, one should not merely look for a statement that is evidence for p, but for a statement that warrants concluding that p. Indeed, solving a philosophical problem consists in determining which of its problem cases are true, not just which of its problem cases are evidenced. Thus, in discussing the modal question, I will mainly (although not exclusively) focus on those pieces of evidence that warrant what they support.

10. Scepticism

The methodological setup introduced in this chapter yields a rather unusual epistemological framework, one that is apparently skewed in favour of scepticism – in particular, scepticism about the view that things could have been otherwise. As defined, a problem is the task of determining what are the true statements among a given set of statements P (the set of cases for this problem). To solve a problem is to complete this task. Thus, if a problem remains unsolved, the task has not been completed: it has not been determined what are the true statements among P, i.e. it is not the case that evidence warranting the conclusion that p is true (respectively, false) has been found for each member p of P.

So, if one maintains that there is an unsolved problem identified by the set of cases P, one is implying that it has not yet been determined what are the true members of P. Because of this, maintaining that some problem is unsolved may lead one to the brink of scepticism. For example, consider the view that there is an unsolved problem in which

(1) I have two hands

is a case. As just outlined, an immediate consequence of this view is that it has not been determined that (1) is true, i.e. that we have yet to find evidence warranting (1). This latter position is typically one that a sceptic about the external world would accept.

(By supplementing this position with a principle according to which it is known that p is true only if it has been determined that p is true, one may conclude that it is not known that (1) is true. And this latter claim is a paradigmatic instance of scepticism about the external world. One may avoid this result by rejecting the suggested principle, perhaps on the ground that it makes it much too difficult to attain knowledge.)

The claim that we are yet to find enough evidence for (1) is controversial. Few, I think, would grant this to the sceptic about the external world. And so, few would accept the view that there is still an unsolved problem in which (1) is a case. Thus, maintaining that there is such a problem yields an unusual epistemological framework, in the sense that doing so requires denying rather standard assumptions about what is warranted.

The point is directly relevant to my discussion of the modal question. As the next chapter will make clear, I start my investigation of the modal question by assuming that there is an unsolved problem with such cases as

(2) I could have been standing, rather than sitting.

Because of this, I must maintain that it has not been determined that (2) is true, i.e. that we are yet to find evidence warranting (2). So, I must reject the seemingly standard assumption that there is already enough evidence that (2) is true. If this is indeed a standard assumption, then the problem I am attempting to solve in those pages forces me into an unusual epistemological framework.

Is working within this framework objectionable? It is not. One may worry that the framework is skewed in favour of the sceptic about mere possibilities, that it makes it too easy to maintain my view that things could not have been otherwise. I readily grant that this framework is more sceptic-friendly than the usual one. However, it does not provide the sceptic with an unfair advantage. I do not start from the assumption

that there is no evidence warranting (2), but only from the milder assumption that if there is such evidence, we are yet to find it – just as we are yet to find evidence warranting the negation of (2).

In this chapter, I have offered a framework for addressing philosophical questions. I have said that any philosophical question is linked to several problems. A problem is defined as the task of determining what statements among a given set — the set of cases for this problem — are true. A problem is uniquely identified by the set of its cases. A solution to a problem is the set of cases that are true. To solve a problem is to determine which problem cases are true. In order to determine whether a problem case (more generally, a statement) p is true, we consider whether there is evidence for p and whether this evidence warrants the conclusion that p is true. There is evidence for p iff there is a true statement that entertains a special kind of relation with p. If one maintains that a problem is yet to be solved, they must maintain that it has not yet been determined what are the true cases of this problem, which may lead them to reject standard assumptions about what is warranted.

III. The Modal Problem

Relying on the account presented in the previous chapter, we are now in a position to precisely define the problem that the present text attempts to solve. Doing so has two purposes. First, it will make it easier for the reader to precisely assess whether I achieved my aim of answering the modal question. Second, it anticipates potential deflationist worries. Some philosophical questions — especially when they occupy an overarching spot, as the modal question does — are regarded with suspicion. The ontological question 'what is there?' is a case in point. It is argued that the dispute about this question is merely verbal (Hirsch, 2002, 2005) or that there is no fact of the matter regarding whether such and such answer is correct, so that the dispute is factually empty (Balaguer, 2018). In defining exactly the kinds of answers of interest for my discussion, I hope to steer clear of these suspicions.

Among the various problems linked to the modal question, I pick the one that can be roughly defined as the task of determining what statements of the form $\Diamond p \wedge \neg p$ are true, where the value of p is a statement attributing a property to something (§11). After discussing the scope of the problem (§12), I spell out the conditions at which a statement of this form is true (§§13–15) and say something about the notion of actuality and the phrase 'the actual world', which are often central in discussing what is possible (§16). Finally, I address the worry that my setup of the problem is too idiosyncratic (§17).

11. Defining the Modal Problem

We are now in a position to precisely define the problem that the present text attempts to solve. Call this the modal problem. As it should be clear from the previous chapter, the modal problem is supposed to be one of the problems raised by the modal question 'what could have been otherwise?'. But what problem exactly?

We already saw (§5) that a candidate answer to the modal question does not only communicate something about what is possible. It also tells us about what is. For example, a candidate answer to the

modal question will not only say that it is possible for Venus to be a moon; it will also say that Venus is not a moon. More generally, a candidate answer to the modal question will not only maintain that *p* is possible; it will also deny that *p* is true. This suggests that any candidate answer to the modal question is equivalent to an instance of the schema 'it is possible that *p* and it is not the case that *p*'. In symbols:

$\Diamond p \wedge \neg p$.

Since this schema is a conjunction, a candidate answer to the question will imply both the relevant instance of $\Diamond p$ and the relevant instance of $\neg p$. However, it is important to keep in mind that often, the claim that $\neg p$ is left as a conversational implicature. For example, suppose that when asked 'what could have been *otherwise*?', one simply responds 'Venus could have been a moon'. From the context of the discussion, it is clear that one intends to communicate more than the thought that it is possible for Venus to be a moon. Indeed, one also intends to convey the thought that Venus is not a moon. More generally, in many cases, it is natural to answer the modal question by using a sentence of the form 'it could have been that *p*' and leaving the claim that $\neg p$ as a conversational implicature.

A candidate answer to the modal question is equivalent to a statement of form $\Diamond p \wedge \neg p$. Given this, a natural suggestion is to define the set of cases for the modal problem as the set of all statements of this form. Following this suggestion, my view that things could not have been otherwise can be characterized as the view that no statement of this form is true. This characterization has the advantage of being simple and elegant. Unfortunately, it is inadequate for our purposes. Indeed, it is trivial to show that the view is false under this characterization.

To see this, consider English*: a language similar to English, but in which a negation operator changes the reference of some proper name in its scope according to a predefined function — say, a function that maps the name of planets to French cities. Thus, in English*, the sentence 'Venus is a planet' attributes the property *being a planet* to Venus, but the sentence 'Venus is not a planet' denies that the city of Lyon has this property.

English* contains true statements of form $\Diamond p \wedge \neg p$. For example, it contains the statement

(1) It is possible that Venus is a planet and Venus is not a planet.

This statement is clearly an instance of $\Diamond p \wedge \neg p$. In fact, it is a *true* instance of $\Diamond p \wedge \neg p$. The English translation of (1) is

(2) It is possible that Venus is a planet and the city of Lyon is not a planet,

which is clearly true. Thus, there are true statements of form $\Diamond p \wedge \neg p$. Therefore, if the view that things could not have been otherwise is characterized according to the above suggestion, it is false.

This shows that the proposed characterization does not correctly capture what is at stake in the modal question. Clearly, (2) is not an appropriate candidate answer to the question 'what could have been otherwise?'. When one claims that at least some things could have been at least somewhat different from what they are, they do not merely mean that some weird language contains a true instance of $\Diamond p \wedge \neg p$. When I claim that things could not have been otherwise, it is clearly not my intent to imply that (2) is false.

Therefore, the characterization of the modal problem suggested above must be amended. The set of cases for the modal problem cannot be the set of *all* statements of form $\Diamond p \wedge \neg p$. We must find a way to exclude irrelevant instances of the schema. To achieve this, an obvious solution is simply to stipulate that the set of cases in the modal problem must only contain statements from English and other natural languages, or perhaps only statements satisfying a principle of compositionality (Szabó, 2022). Alternatively, we may attempt to define a formal language (say, a standard language of first-order logic), specify an interpretation of this language (say, one in which the domain is the set of all things, there is a surjective mapping from constants to things, and there is a surjective mapping from predicates to sets of things sharing a property) and say that the set of cases for the modal problem is the set of all statements of form $\Diamond p \wedge \neg p$ in this language under the specified interpretation.

These strategies allow us to remove English* and other weird languages from our discussion of the modal problem. However, it is not clear that they can be successfully implemented. For example, what exactly counts as a statement of natural language? And are we certain that natural languages do not sometimes behave similarly to English*? Or, if we go with the latter strategy, how exactly are we to completely specify the relevant interpretation? Moreover, these strategies force us to adopt a linguistic

definition of the modal problem, i.e. one that makes reference to specific languages. But this approach lacks elegance. The modal problem is not primarily a problem about language. Although defining a problem requires talking about statements (since problem cases are just statements), it should not be necessary to focus on statements of a particular language if the problem is not a linguistic one.

But how can we define the set of cases for the modal problem without referring to a particular language? Very roughly, the key idea here is to focus on the meaning of statements, independently of the language to which these statements belong. I follow this approach in the remainder of this section.

Remember that one part of the modal question is the question of properties 'how things could have been?'. This question is concerned with the properties that things lack, but could have. Thus, when a statement of the form $\Diamond p \wedge \neg p$ answers the question of properties, the value of p will often be a statement attributing a property *r* to some particular thing *a*. In English, such statements can be formed by saturating a two-place predicate such as '…has…', '…instantiates…', or '…exemplifies…' with an expression referring to the thing *a* on one side and the name of the property *r* on the other side, as in 'Venus has the property *being a planet*'. Perhaps more typically, these statements can also be formed by saturating a one-place predicate with an expression referring to *a*, e.g. 'Venus is a planet'.

One should not conclude from this alone that every statement formed in this way is a statement attributing a property to this thing. For example, it is certainly a coherent view that 'Venus is a celestial body' does not attribute a single property to Venus, but instead says of Venus that it has both the property *being a material object* and *being in outer space.* Similarly, it is a coherent view that 'Alpha Centauri is a stellar system' does not attribute the property *being a stellar system* to a single thing, but instead says of many things arranged in some particular way that they collectively have this property.

The point is important given the current dialectical setting. It is good methodology to keep the interactions between various related philosophical questions to a minimal level, so that one question is not needlessly muddied by another. Thus, my discussion of the modal question 'what could have been otherwise?' should be as independent as possible from discussions of the ontological question 'what is there?', although some level of dependency is of course inevitable.

Because of this, my account aims to stay neutral about what things there are and (in particular) about what properties there are. An immediate consequence of this policy is that my account must also be neutral regarding what sentences are statements attributing a property to something. In particular, I cannot assume that all sentences of a particular form attribute a property. Therefore, I will only speak abstractly about the class of sentences attributing a property to something, without attempting to determine whether a particular sentence is a member of this class. For the purposes of exposition, I sometimes pretend that a sentence is a member of this class. But nothing of importance will be lost if those examples are replaced by others.

A candidate answer to the modal question is sometimes a statement of the form $\Diamond p \wedge \neg p$ where p attributes a property r to a particular thing a. However, this is not enough to account for all candidate answers to the question. To start, we should not restrict ourselves to the case where p attributes a property r to a single thing a. Rather, we should consider the more general case where the value of p is a statement attributing an *n*-place relation r to things $a_1, \ldots, a_n$. Call this a relational statement, or r-statement for short. Examples of r-statements include 'Venus is a planet', 'Venus bears the relation *being in orbit of* to Mars', and 'Venus is between Mercury and Earth'.

In discussing the modal question, we are interested in knowing both whether something could have a property it lacks, and whether something could lack a property it has. So, we should consider both statements attributing a property to a particular thing, and negations of such statements. Moreover, the question of properties is also concerned with whether something could have a specific *cluster* of properties or relations. Thus, we should also consider statements attributing multiple properties to a thing, e.g. 'Venus is a planet and Venus is cube-shaped'. All this suggests that the value of p in $\Diamond p \wedge \neg p$ might be a complex r-statement: a statement formed from other r-statements by applying the operations of classical propositional logic (negation, conjunction, etc.).

Finally, a candidate answer to the modal question may sometimes talk about things in all generality, rather than about a particular thing. So, p in $\Diamond p \wedge \neg p$ should be allowed to be an existential r-statement: a statement formed from other r-statements by existential generalization, where the existential quantifier

is unrestricted. For example, ‘Venus orbits something’ and ‘some planet is not sphere-shaped’ are existential r-statements.

The stipulation that the quantifier ranges unrestricted is there to help us avoid ambiguity. To see why this is important, suppose that because an astronomer is convinced that Venus or Mars could have been habitable, they maintain that some planet other than Earth could have been habitable. This claim is equivalent to an instance of $\Diamond p \wedge \neg p$, where the value of p is ‘some planet other than Earth is habitable’. And so, it seems that the astronomer’s claim is a candidate answer to the modal question.

There is a cheap way to attack this candidate answer. Given what we know regarding the number of stars in the universe, the average number of planets orbiting a star, and the conditions that a planet must meet to be considered habitable, the conclusion that some exoplanets are habitable is warranted. So, the second conjunct of the astronomer’s claim, $\neg p$, is false. This attack is a cheap one, because it twists what the astronomer presumably meant, namely that some planet *in the Solar System* could have been habitable. That is, the existential quantifier in the astronomer’s claim is implicitly restricted to the set of things in the Solar System. By stipulating that the existential quantifier in an r-statement ranges over the set of all things, we ensure that any such implicit quantifier restriction is made explicit, thus preventing cheap attacks of the kind just introduced. (Of course, the astronomer’s case is a simple toy example. But it is easy to see how cases that are more philosophically interesting can occur in practice. For example, suppose that one maintains that some planet could have been cube-shaped, but implicitly restrict quantification to the set of things that are at some distance from us, in space or in time.)

At this point, we are able to account for candidate answers to the question of properties. What about candidate answers to the question of being? We saw (§3) that talk of being is commonly recast as talk of having the identity relation to something. For example, it is often assumed that ‘Venus is’ is equivalent to ‘Venus is identical to something’. Given this assumption, candidate answers to the question of being can be treated in the same way as candidate answers to the question of properties. Thus, for example, ‘Venus could fail to be’ is taken to be equivalent to an instance of $\Diamond p \wedge \neg p$, where the value of p is the r-statement ‘Venus is not identical to something’.

Notice that this move forces us to accept the existence of the identity relation. Therefore, it is incompatible with a complete neutrality about what relations there are. This is a price I am willing to pay. Notice also that while I made the fairly standard choice to render talk of being in terms of the identity relation, there may be other relations that can serve the same purpose, e.g. *being an object*.

Summarizing the discussion of the previous pages, we get to the following definition: a statement is an r-statement iff

(i) it attributes a n-place relation to things $a_1, \ldots, a_n$, or

(ii) it is built from an r-statement by the standard operations of classical propositional logic, or

(iii) it is built from an r-statement by existential generalization, where the quantifier ranges unrestricted.

For example, assuming that Fa and Gb are statements attributing a property (1-place relation) to a thing, Fa, Gb, $\neg Fa$, $Fa \wedge \neg Gb$, $\exists x Fx$, $\exists x \neg Fx$, $\neg \exists x \neg Fx$, $\exists x Fx \wedge \exists x Gx$, $\exists x \exists y (Fx \wedge Gy)$, etc. are r-statements. Assuming that Hab is a statement attributing a 2-place relation to things, Hab, $\neg Hab$, $\exists x Hxb$, $\neg \exists x Hxb$, $\exists x \exists y Hxy$, etc. are r-statements. Notice that given the standard equivalence between $\forall x \varphi$ and $\neg \exists x \neg \varphi$, this definition allows for r-statements containing universal quantifiers.

We are now in a position to properly define the modal problem. Indeed, we now see that a candidate answer to the modal question is equivalent to an instance of $\Diamond p \wedge \neg p$, where the value of p is an r-statement. Call this a contingency statement, or c-statement for short. For example, assuming that Fa is an r-statement, $\Diamond Fa \wedge \neg Fa$, $\Diamond \neg Fa \wedge Fa$, $\Diamond \exists x Fx \wedge \neg \exists x Fx$ and $\Diamond \forall x Fx \wedge \neg \forall x Fx$ are c-statements.

At this point, the modal problem is naturally defined as the task of determining what c-statements are true. That is, the set of cases for the modal problem is the set of all c-statements. A potential solution to this problem is a set of c-statements. The correct solution to this problem is the set of all true c-statements. To solve the problem is to determine what are the true statements in this set.

12. Contingency Statements

The reader may rightly point out that not all candidate answers to the modal question are c-statements. Indeed, the question of properties does not only ask whether some particular thing a could have had different properties from the ones it has. It also asks whether some member of a given set of things (some planet, some human, something, etc.) could have had different properties than the one it has. Thus, a candidate answer to the modal question will sometimes be equivalent to the existential generalization of a c-statement, rather than to a c-statement itself. For example, it seems that 'there is something that could be a moon, even though it is not' is a perfectly appropriate candidate answer to the modal question. More generally, assuming that Fa is an r-statement,

(1) $\exists x(\Diamond Fx \wedge \neg Fx)$

appears to be a candidate answer to the modal question. But (1) is not a c-statement, and so, not a case for the modal problem according to the above definition.

Should we revise our definition of the modal problem in light of these considerations? While we may easily do so, this is not required. It is enough to note that the existential generalization of a c-statement will be true iff at least one c-statement is true. Thus, by determining what the set of true c-statements is — by solving the modal problem — we automatically determine what are the true existential generalizations of c-statements. Adopting this approach allows us to keep the set of cases for the modal problem as small and tidy as possible, making the problem more tractable.

But one may still worry that many other candidate answers to the modal question are excluded by my definition of c-statement. In particular, if the value of p is a statement that itself includes a modal operator — e.g. 'it is possible for Venus to be a moon', 'necessarily, Venus is a planet', 'Venus could orbit Jupiter', etc. — the corresponding instance of $\Diamond p \wedge \neg p$ will not be a c-statement. For example, let *P* abbreviate some r-statement, say 'Venus is a moon'. Then,

(2) $\Diamond P \wedge \neg P$

is a c-statement (and thus a case of the modal problem), but

(3) $\Diamond\Diamond P \wedge \neg\Diamond P$

is not, even though both (2) and (3) are instances of $\Diamond p \wedge \neg p$. Similarly,

(4) $\Diamond\Diamond P \wedge \neg P$

(5) $\Diamond(\Diamond P \wedge \neg P)$

are not c-statements, because they are not instances of $\Diamond p \wedge \neg p$ in the first place.

(A consequence of this point is that for our purposes, we need to worry about the interactions between multiple modal operators. In particular, we will not have to decide whether instances of

(6) $\Diamond\Diamond p \rightarrow \Diamond p$

(7) $\Diamond p \rightarrow \Box\Diamond p$

(8) $p \rightarrow \Box\Diamond p$

hold for all values of p. And so, I do not need to choose one of the systems *S4*, *S5*, or *B* of modal logic. I do, however, commit myself to *M*, since I assume that whatever is is possible, i.e. that all instances of $p \rightarrow \Diamond p$ hold.)

Why this restriction? First, statements such as (3)–(5) are not very naturally taken as candidate answers to the modal question. If I ask 'what could have been otherwise?', I expect that you answer something like 'Socrates could have been a farmer (rather than a philosopher)', and not '*possibly*, Socrates could have been a farmer'. Second, any satisfying treatment of the modal question should at least tell us whether c-statements are true or false. That is, any of the multiple problems that are raised by the modal question should at minimum contain all c-statements among its cases. In that sense, the modal problem (as I have defined it) is the core problem raised by the modal question. Third, when treating a philosophical question, I simply find it a good methodological practice to focus first on the smallest problems raised by this question, i.e. those problems that have the least cases.

In the vein of the worry just raised, one may also complain that my definition of the modal problem leaves out many kinds of statements. For example, one may notice that belief ascriptions, such as

(9) John believes that Venus is a moon,

tense-logical claims, such as

(10) Yesterday, there was a sea battle,

and claims that contain a modal operator expressing a kind of modality other than metaphysical modality, such as

(11) It is nomically necessary that no planet is cube-shaped,

are not r-statements. Thus, an instance of $\Diamond p \wedge \neg p$ where p is one of (9)–(11) is not a c-statement, i.e. not a case of the modal problem according to my definition. But surely, the objection goes, such an instance of $\Diamond p \wedge \neg p$ should be included in the modal problem.

One line of reply here is to attack the claim that (9)–(11) are not r-statements. Granted, contrary to many r-statements, (9)–(11) are not very well rendered in a standard first-order language. But remember that the set of r-statements is defined without any reference to a particular language. Rather, the r-statements are defined semantically. In particular, according to clause (i) of this definition, for a statement to be an r-statement, it is enough that it attributes a relation to some things. Thus, for example, if (9) is taken to attribute the 3-place relation ... *has* ... *about* ... to John, John's belief, and the proposition 'Venus is a moon' (in this order), then (9) is an r-statement. Of course, it is not my intent here to assert or deny that (9) should indeed be read in that way (in part because I wish to stay neutral on what relations there are). Rather, my point is that my definition of the modal problem is compatible with the view that (9)–(11) are r-statements. In any case, should this line of reply fail, I can simply fall back on the reply I made above: although instances of $\Diamond p \wedge \neg p$ with statements such as (9)–(11) are candidate answers to the modal questions, it is better to focus first on the core problem raised by this question, namely the problem identified by the set of c-statements.

Let us now turn our attention to candidate answers to the question of being. Consider

(12) Possibly, there is something such that actually it is not.

This statement does not appear to be equivalent to a statement of form $\Diamond p \wedge \neg p$. Thus, it seems that (12) is not a c-statement, and so, not a case for the modal problem. Yet, surely, (12) expresses the view that there are merely possible objects and should then be counted as a candidate answer to the question of being. Does this indicate that our definition of the modal problem is inappropriate?

It does not. While (12) is not itself a c-statement, it entails a c-statement together with the view that

(13) Everything is.

For (13) is equivalent to

(14) It is not the case that there is something such that it is not.

Now, 'actually' makes no difference to the truth value of a sentence if it is used outside the scope of a modal operator. So, (14) is itself equivalent to

(15) It is not the case that there is something such that actually it is not.

And the conjunction of (12) and (15) is clearly an instance of $\Diamond p \wedge \neg p$. So, since I am assuming that (13) is true (see §2), my definition of the modal problem does not unduly exclude (12) from the cases of this problem.

There is an obvious connection between the notion of c-statement and the (more familiar) notion of contingent falsehood. By definition, a contingent falsehood is a statement that is false, but could be true. Thus, every instance of the following schema holds:

It is contingently false that p iff $\Diamond p \wedge \neg p$.

This shows that the task of determining what c-statements are true is the task of determining what r-statements are contingently false. While I generally prefer the first formulation of the task (notably because it emphasizes the fact that we are looking for truths), the second formulation is always available and I will occasionally use it.

The modal problem is the task of determining what c-statements are true. Given this, the following question naturally arises: under what conditions is a c-statement true? And so, in particular: under what conditions is the first conjunct of a c-statement, $\Diamond p$, true? The next section takes up this question.

13. Worlds

Let p be an r-statement attributing a property to a given thing, say 'Venus is a planet'. At what conditions is $\Diamond p$ true? I answer that $\Diamond p$ is true iff there is a world such that p is true at it. However, as it stands,

this reply is hardly useful. Indeed, what do I mean by 'world' here. And what does it mean to say that a statement is true at some world. I will now answer each question in turn.

In line with the classical semantics for modal logic (e.g. Garson, 2001, p. 271), I take a world to be an index. Here, 'index' is roughly synonymous with 'unique identifier'. Familiar examples of indices include International Bank Account Numbers (IBANs) — each of which uniquely identifies a bank account — Digital Object Identifiers (DOIs) — each of which uniquely identifies a publication — and first names in a group where no two people have the same name — each of which uniquely identify a member of the group.

Given that worlds are indices, what are worlds indexing exactly? What do worlds uniquely identify? The answer, roughly put, is that worlds identify some mappings of properties to sets of things, namely those mappings that represent how things could be. It is worth spelling out this view a bit more carefully.

Let R be the set of properties and U be the set of all things. I find it useful to think of U as the set such that for every set of things S, $S \cup U = U$. Let $\mathcal{P}(U)$ be the powerset of U, i.e. the set of all subsets of U, including both the empty set and U itself. Now, by 'mapping of properties to sets of things', I simply mean a function $f: R \rightarrow \mathcal{P}(U)$. Let $\mathcal{F}$ be the set of all such functions.

The idea is that there is a subset $\mathcal{F}_W$ of $\mathcal{F}$, each member of which represents one way things could be. For example, suppose that it is possible that Venus is a moon. Then, $\mathcal{F}_W$ will contain at least one function mapping the property *being a moon* to a set containing Venus. That is, for some $f_w \in \mathcal{F}_W$, Venus $\in$ f_w(*being a moon*). By contrast, suppose that it is impossible that Venus is cube-shaped. Then, no member of $\mathcal{F}_W$ will map *being cube-shaped* to a set containing Venus. Thus, for all $f \in \mathcal{F}$, if Venus $\in$ f(*being cube-shaped)*, then $f \notin \mathcal{F}_W$. The worlds, then, are simply taken to be indices for the members of $\mathcal{F}_W$.

From there, the idea of an r-statement being true at a world is easily defined. Assume that p attributes a property r to a particular thing a. Then, p is true at a particular world w_1 iff the function f_{w_1} indexed by this world is such that $a \in f_{w_1}(r)$. Thus, p is true at some world iff some world w indexes a function f_w such that $a \in f_w(r)$.

Treating worlds as indices allows us to sidestep issues that are sometimes raised about them. In particular, there are various disputes in the philosophical literature about the nature of worlds. Here, I notably have in mind classic positions such as modal realism (e.g. D. K. Lewis, 1973a, pp. 84–91, 1986), ersatzism (e.g. Adams, 1974; Plantinga, 1976; Stalnaker, 1976), and combinatorialism/deflationism (Armstrong, 1989; Rosen, 1990), although much more has been written on these issues. Under the proposed account, the question of what worlds are is both unproblematic and uninteresting. Indeed, under my account, the set of worlds W must be the domain of a one-to-one function whose range is the set of mappings $\mathcal{F}_W$. This means that there must be as many worlds as there are members of $\mathcal{F}_W$. But it does not matter *what* these worlds are. Any set which is as large as $\mathcal{F}_W$ can serve as a set of indices for the members of $\mathcal{F}_W$. And so, just as we choose to use a certain set of 34-character strings to serve as the set of IBANs, we can choose any set of the right size to serve as the set of worlds.

(Notice that in some cases, an index will not only uniquely identify something, but also carry information about this thing. For example, the first two characters of an IBAN represent the country in which the bank account identified by this IBAN is registered. No similar constraints are put on worlds. A world does not need to carry any information about the mapping f_w indexed by it.)

All this suggests that the notion of worlds plays no fundamental role for the truth conditions of $\Diamond p$. It is not the worlds that determine which statements of the form $\Diamond p$ are true, but the mappings f_w identified by those worlds. If I talk of worlds, it is mainly because this talk is standard in the literature and thus, hopefully, familiar to the reader. But one may easily bypass this talk of worlds altogether. Given a statement p attributing a property r to a particular thing a, we simply say that p is true iff for some $f_w \in \mathcal{F}_W$, $a \in f_w(r)$.

At this point, I have only considered the truth conditions for instances of $\Diamond p$ where p is a simple r-statement, i.e. one that attributes a property (1-place relation) to a single particular thing. However, the account can easily be expanded to include more complex cases. Suppose that p is an r-statement attributing a 2-place relation r to things a and b (in this order), e.g. 'Venus orbits Mars'. To account for such a statement, we consider the set $\mathcal{F}_2$ of all mappings of relations to sets of 2-tuple. Just as before, there is a subset $\mathcal{F}_{2_W}$ of $\mathcal{F}_2$ whose members represent ways things could be. Thus, we say that $\Diamond p$ is

true iff there is some member $f_w \in F_{2_W}$ such that $(a, b) \in f_w(r)$. Relations of any arity can be accounted for in a similar way.

From there, complex r-statements built from simpler r-statements by the operations of classical propositional logic are handled in the obvious way. For example, suppose that p attributes a property r to an individual a. Then, $\Diamond\neg p$ is true iff for some $f_w \in \mathcal{F}_W$, $a \notin f_w(r)$. Or suppose that p attributes a property r to a, and q attributes a property s to b. Then, $\Diamond(p \wedge q)$ is true iff for some $f_w \in \mathcal{F}_W$, $a \in f_w(r)$ and $b \in f_w(s)$. Similarly, there is no particular difficulty with cases where p in $\Diamond p$ is built from an r-statement by existential generalization. For example, assume that Fa is an r-statement attributing a property r to a. Then, $\Diamond\exists xFx$ is true iff for some $f_w \in \mathcal{F}_W$, $f_w(r) \neq \emptyset$, i.e. iff at least one of the functions indexed by the worlds maps r to a non-empty set of things.

14. Identity

It is illuminating to see how candidate answers to the question of being are accounted for under the proposal developed in the previous section. To start, remember (§3, §11) that talk of something being (or failing to be) is naturally recast as talk of having (failing to have) the identity relation to something. For example, 'Venus is' can be transformed into 'Venus has the identity relation to something'. This is convenient given the current dialectical framework, since it allows us to treat candidate answers to the question of being as a special case of candidate answers to the question of properties.

The identity relation displays the following two defining features:

(i) everything has the identity relation to itself,

(ii) it is impossible that something has the identity relation to something else.

Condition (i) simply tells us that the identity relation is reflexive. To put the point more clearly, let us define the set of instances of a binary relation r as the set of all pairs (x, y) such that x is related to y by r. So, for example, (Phoebe, Mars) and (Io, Jupiter) are instances of *being in orbit of*. Then, condition (i) simply tells us that the set of instances of *being identical to* contains all the pairs (x, x) that can be constructed from U. For example, if $U = \{a, b\}$, the set of instances of the identity relation will contain (a, a) and (b, b).

Condition (ii) tells us that there is no world at which the identity relation holds between two different things. That is, for all $f_w \in \mathcal{F}_W$, f_w(*being identical to*) is a subset of the set of all pairs (x, x) that can be constructed from U. For example, if $U = \{a, b\}$, the identity relation may only be mapped to $\{(a, a)\}$, $\{(b, b)\}$, $\{(a, a), (b, b)\}$, or the empty set.

Notice that given the standard assumption that $p \rightarrow \Diamond p$, it follows from (i) and (ii) that the identity relation is a relation that everything has to itself and to nothing else. That is, it follows that the set of instances of the identity relation is the set of all and only those pairs (x, x) that can be constructed from U. Thus, we can also think of condition (ii) as telling us that for all $f_w \in \mathcal{F}_W$, f_w(*being identical to*) is a subset of the set of instances of the identity relation.

Let p be a statement saying of some particular thing a that it is. Given our assumption that talk of being can be recast as talk of having the identity relation to something, it is natural to treat p as we would treat any other statement attributing a relation to something. Thus, we say that $\Diamond p$ is true iff for some $f_w \in \mathcal{F}_W$, $(a, a) \in f_w$(*being identical to*). Similarly, we say that $\Diamond \neg p$ is true iff for some $f_w \in \mathcal{F}_W$, $(a, a) \notin f_w$(*being identical to*).

We can simplify this account a bit. We just saw that for all $f_w \in \mathcal{F}_W$, f_w(*being identical to*) is a subset of the set of pairs (x, x) that can be constructed from U. Thus, for every member of $f_w \in \mathcal{F}_W$ – and so, for every world w – we can define a set D_w of all the things used to construct the pairs in f_w(*being identical to*). For example, given a f_w such that f_w(*being identical to*) $= \{(a, a), (b, b)\}$, $D_w = \{a, b\}$. More generally, D_w is the set such that for everything x, $x \in D_w$ iff $(x, x) \in f_w$(*being identical to*). We call D_w the domain of w, and say of a member of this domain that it is at w. So, if p is a statement saying of a that it is, $\Diamond p$ is true iff a is at some world. Similarly, $\Diamond \neg p$ is true iff there is some world at which a is not.

This account raises two worries. First, one may complain that there is no such thing as U, the set of all things. Indeed, if U is the set of all things, whatever set there is is a member of U. So, U is a set containing all sets. But well-known set-theoretic paradoxes show that there is no such set.

Point granted. There is no such set as U. It seems to me that this does not affect the spirit of the proposed account in a major way. Of course, the members of $\mathcal{F}_W$ – the things indexed by the worlds – cannot be defined as functions from the set of properties to $\mathcal{P}(U)$. But to capture my point, it is enough to say that a member of $\mathcal{F}_W$ is a function mapping every property to a set of things. We do not need to define the codomain of this function. Similarly, references to U can be removed from the above discussion of the identity relation.

Second, one may worry that my account presupposes necessitism, the view that it is necessary what there is. More precisely, the worry is that my account presupposes

(1) $\forall x \Box \exists y \; y = x$,

where '=' is a predicate expressing the relation *being identical to* discussed in this section. Note that (1) is not quite the same as necessitism in the sense of Williamson (2013, p. 2). In that text, necessitism is the stronger view that *necessarily* everything is necessarily something, i.e. the view that (1) is not only true, but necessarily true. Obviously, my account does not presuppose this stronger view if it does not presuppose (1).

It would indeed be highly inappropriate if (1) were baked into my account. For (1) is equivalent to

(2) $\neg \Diamond \exists x \neg \exists y \; y = x$.

In other words, (1) is equivalent to the claim that it is impossible that something is not. But this is clearly an answer to the question of being, and so an answer to part of the modal question. So, if (1) is a consequence of the account presented here, this account presupposes a partial answer to the modal question, which is clearly inappropriate given the current dialectical setting.

Fortunately, this worry is unwarranted. My account does not presuppose that it is necessary what there is. Consider some particular thing a. Given the condition (i) above, a has the identity relation to itself. In other words, the pair (a, a) is among the instances of the identity relation. Yet, nothing I have said suppose that at every world, (a, a) is among the pairs mapped to the identity relation. Thus, it will perhaps turn out that for some $f_w \in \mathcal{F}_W$, $(a, a) \notin f_w(\textit{being identical to})$. But if so, it follows from

condition (ii) above that there is nothing y such that $(a, y) \in f_w$(*being identical to*). Thus, we have that for something x, there is nothing y such that $(x, y) \in f_w$(*being identical to*). Therefore,

(3) $\Diamond \exists x \neg \exists y\ y = x$.

But (3) is equivalent to the negation of (1). So, it is compatible with my account that (1) is false. More generally, my account does not presuppose necessitism.

Crucially, I have allowed that there is some world at which a is not identical to itself, i.e. some world at which (a, a) is not among the pairs mapped to the identity relation. Notice that this is not specific to the identity relation. In general, it is compatible with my account that something is an instance of a relation r without also being a member of $f_w(r)$ for all $f_w \in \mathcal{F}_W$. For example, it is compatible with my account that Venus is an instance of *being a planet* and that for some $f_w \in \mathcal{F}_W$, Venus is not a member of f_w(*being a planet*). But here, one may object that I should not treat the identity relation as I treat any other relation. For it is obviously true – analytical, in fact – that necessarily, everything is identical to itself. Thus, my account does force us to embrace necessitism, contrary to what I claim.

This objection can be resisted as follows. It is often assumed that there is a relation r_1 that necessarily, everything has to itself and nothing else. Granting that r_1 does indeed exist, it has exactly the same instances as the relation r_2 I have used to express claims of existence, i.e. the same instances as the relation I have been referring to by using the expression 'the identity relation'. However, contrary to what the objector says, it is *not* obvious that r_1 is r_2, precisely because it is not obvious that necessitism is true. At any rate, the fact that r_1 and r_2 have the same instances does not entail that r_1 is r_2. Nor, of course, does the fact that r_1 and r_2 can both be referred to by the expression 'the identity relation'.

15. Being and Possibility

Let Fa be a simple r-statement saying of some particular thing a that it has the property r. At what conditions is

(1) $\exists x \Diamond Fx$

true? Given the current framework, it is natural to read this sentence as saying that there is something x such that x has r at some world. That is, (1) is naturally read as equivalent to

(2) There is something x s.t. for some $f_w \in \mathcal{F}_W$, $x \in f_w(r)$.

Now, obviously, (2) is true iff

(3) For some $f_w \in \mathcal{F}_W$, there is something x s.t. $x \in f_w(r)$.

And given what we said above, (3) is true iff it is possible that something has r. That is, (3) is true iff

(4) $\Diamond \exists x Fx$

is true as well. Thus, the following is a consequence of the account just proposed:

(5) $\exists x \Diamond Fx \leftrightarrow \Diamond \exists x Fx$.

It is easy to see that a similar result can be obtained even when we start from r-statement more complex than Fa, such as $\neg Fa$, $Fa \wedge Gb$, and $\exists y Hay$. More generally, letting φ stand for an open sentence such that $\exists x \varphi$ is an r-statement, we find that the schema

BF. $\exists x \Diamond \varphi \leftrightarrow \Diamond \exists x \varphi$

holds for every value of φ. This is not particularly surprising. After all, instances of this schema are theorems of various quantified modal logics, including the Simplest Quantified Modal Logic. This well-known result was first presented in Barcan (1946). Garson (2013, sec. 12.7) contains a discussion and proofs using recent notation. This schema is notably relevant to the actualism-possibilism (or necessitism-contingentism) debate (§2), as outlined e.g. in Williamson (2013, Chapter 2). I will come back to this point below (§52).

A consequence of BF is that (assuming that Fa is an r-statement)

(6) $\exists x \Diamond Fx \wedge \neg \exists x Fx$

is a c-statement. Indeed, given BF, (6) is equivalent to

(7) $\Diamond \exists x Fx \wedge \neg \exists x Fx$,

which is clearly a c-statement.

16. Actuality

As is standard, I assume that every instance of the schema $p \rightarrow \Diamond p$ is true. Thus, if p is true, p is also true at some world. This in turn means that, at the very least,

if something has a property, it also has this property at some world.

For example, assuming that Venus has the property *being a planet*, it must be that Venus has this property at some world, i.e. that for some $f_w \in \mathcal{F}_W$, f_w(*being a planet*) contains Venus. (Properly speaking, this condition should be given for the general case of n-place relations rather than the specific case of properties. For the purposes of exposition, I ignore this complication.)

But this condition alone is not sufficient to ensure that every instance of $p \rightarrow \Diamond p$ is true. Given that Venus is a planet and that Io is a moon, it is not enough that there is a world at which Venus is a planet as well as a world at which Io is a moon. It must also be the case that there is a world at which *both* Venus is a planet *and* Io is a moon.

This reasoning can be pushed to the limit. Suppose that there is a long conjunction of true atomic r-statements, one that completely describes every property of everything: 'Venus is a planet, and Io is a moon, and …'. In this case, given our assumption that $p \rightarrow \Diamond p$, there must be a world such that at this world, everything has the property it actually has. That is, there must be some $f_w \in \mathcal{F}_W$ such that for every property r, $f_w(r)$ is the set of instances of r.

Moreover, since every property has only a single set of instances, we can conclude that there is a unique $f_w \in \mathcal{F}_W$ such that for every property r, $f_w(r)$ is the set of instances of r. And so, there is only one world at which everything has the property it actually has. Call this world w_0. This special world w_0 mirrors reality, in the sense that an r-statement is true at w_0 iff this r-statement is true.

Is w_0 the actual world? As it stands, this question is misguided and should be discarded. Just as it is for the notion of worlds, the notion of the actual world is a technical theoretical notion. The expression 'the actual world' only makes sense when it is used in the context of a theory in which it has been defined. (Sometimes, of course, the definition is implicit. And sometimes, there is no proper definition, but only

a sketchy characterization. Because of these cases, one may get the wrong impression that ‘the actual world’ makes sense by itself, outside the context of a theory.)

I have taken care not to define or use the phrase ‘the actual world’ in what precedes. So, the expression does not make sense in the context of the present discussion. And so, the question ‘is w_0 the actual world?’ has no answer in this context. Asking this question is analogous to asking ‘is 0 a natural number?’ in a context where ‘a natural number’ has not been properly defined. (Some authors use ‘natural number’ as synonymous with ‘positive integer’, others as synonymous with ‘non-negative integers’. Both usages are common and legitimate.)

Of course, just as we may choose to define ‘a natural number’ as ‘a non-negative integer’, we may choose to define ‘the actual world’ as ‘the world w_0’. However, I am hesitant to do so, for at least three reasons. First, while ‘the actual world’ is sometimes used to denote a world satisfying the same conditions as w_0, this is not always the case. Famously, the actual world in Lewis (1986, pp. 92–96) is not a world satisfying those conditions.

Second, if we define ‘the actual world’ in this way, we are forced to depart from an ordinary usage of the phrase ‘the actual *F*’. In those constructions, ‘actual’ is often used to express the idea that the *F* in question is genuine, as in ‘the actual show started after this’, ‘the actual leader was his wife’, and ‘the actual value of the item is lower than expected’. But although w_0 represents what is the case in a way that no other world does, w_0 itself is not more (or less) genuine than any other world.

Third, there is a tendency to use ‘the actual world’ as synonymous with ‘our world’ or ‘this world’, where these expressions mean something like ‘the world at which we are’. But in the present context, such talk is misguided and must be avoided. To say that something is at a world w is to say that this thing is a member of the domain D_w of this world. Since we wish to stay neutral regarding what the set of things associated with each world is, we cannot exclude that we are at more than one world. But in this case, the phrase ‘our world’ simply fails to pick out a single world — just as ‘our circle’ fails to pick out a single circle if we are standing at the intersection of two circles.

Of course, the pitfalls just outlined can easily be avoided by using 'the actual world' carefully. However, I find the benefits are not worth the risk. In any case, the very idea that there is a world such as w_0 is itself suspicious. Indeed, we arrived at this conclusion by supposing that there is a long conjunction describing all the things there are. But one need not give us this supposition. Many languages — presumably including English and other natural languages — do not have the resources to form such a long conjunction. Perhaps a Lagadonian language, i.e. one in which individuals and properties count as names of themselves, fares better in this regard (Sider, 2002). But in any case, it is more prudent not to assume that there is such a long conjunction. More generally, there is no good reason to maintain that there is a world satisfying the conditions of w_0. It is therefore better to stay neutral on whether w_0 is one of the worlds.

Notice that even if we ban 'the actual world' from our vocabulary and stay neutral regarding w_0, we can still use and make sense of expressions containing 'actual' and its cognates. As is standard, we assume that if 'actual' appears outside the scope of a modal operator, it makes no difference to the truth value of the sentence (Stephanou, 2005, p. 381; Williamson, 2013, p. 22). Thus, such statements as 'there is an actual *F*' and 'actually, something is *F*' can simply be read as 'something is *F*' if they are outside the scope of a modal operator. Similarly, if 'actual' appears outside the scope of a modal operator as part of an expression that (attempts to) pick out a particular thing, it can safely be ignored: the actual value of an item is just the value of the item, my actual posture is just my posture, etc. This is not to say that 'actual' has no role when outside the scope of a modal operator. In particular, the word has the rhetorical effect to emphasize the contrast between what is the case and what is possible, or between what is the case and what is merely possible. I occasionally use it in that way in what follows.

What if 'actual' appears within the scope of a modal operator? In this case, a more complex account is required (see e.g. Crossley & Humberstone, 1977). Fortunately, as far as our treatment of the modal problem is concerned, we need not address this issue here.

17. Modal Problems

I have now set up the problem that I will be discussing in the following chapters. However, the reader may notice that many aspects of this setup – my notion of r-statements, my insistence that quantifiers in

c-statements should range unrestricted, my presentation of worlds, my refusal to render claims of existence in terms of a relation that *necessarily* everything has to itself – are specific, perhaps even idiosyncratic. Because of this, one may wonder if the modal problem as I have defined it is truly representative of what one has in mind when one asks whether Venus could have been a moon, or whether Venus could have failed to exist. In short: is my modal problem the *real* modal problem?

While I do not think I have assumed anything too controversial, and while I hope that I have managed to explain my various methodological and theoretical choices, I readily agree that my formulation of the modal problem is somewhat idiosyncratic. This does not worry me. Indeed, it is a mistake to talk about the *real* modal problem. There is no single problem raised by the modal question, no single problem that everyone wondering what could have been otherwise should be working on. This is unsurprising given (i) the fine-grainedness of problems and (ii) the fact that the modal question 'what could have been otherwise?' has rarely been treated as a whole.

More generally, the interpretation of the modal question that I presented in this chapter is only one of many available interpretations of the modal question. These concurrent interpretations are just as legitimate as my own. So, there is clearly a sense in which my definition of the modal problem is not only idiosyncratic, but also arbitrary. I am not particularly thrilled by this result, but I do not see how I can avoid it.

Note that nothing I just said is specific to the case of the modal question. As we saw (§7), a philosophical question is typically associated with a number of different problems. If we want to make progress on a question, we need to focus on one of these problems in particular. This choice must be guided by methodological considerations: is the selected problem discussed in the literature? Is it homogeneous enough to be treated in a unified manner? Can it be elegantly formulated? Does a solution to this problem depend on a solution to other problems? Yet, even taking these considerations into account, choosing a problem over another will always be somewhat arbitrary.

At this point, the reader may raise a further worry: because my account is too idiosyncratic, the modal problem as I have defined it is uninteresting. I disagree. As the next chapter will make clear, many

philosophical views and arguments assume – either explicitly or implicitly – a solution to the modal problem. This alone is enough reason to address it.

In this chapter, I have defined the modal problem as the task of determining what c-statements are true. Roughly, a c-statement is an instance of $\Diamond p \wedge \neg p$, where the value of p is a statement attributing a property to some individual. I have then spelt out the truth conditions for instances of $\Diamond p$, focusing on the simple case where p is a statement attributing a property r to an individual a. In short, the idea here is that $\Diamond p$ is true iff r is mapped to a set containing a by some member of a particular set of functions F_W, the functions representing what is possible. I have also briefly discussed the notion of actuality, and argued that we should be wary of using the phrase 'the actual world' in the present context. In particular, I have pointed out that this phrase cannot be used to denote a world more genuine than all others, for every world is equally genuine. Nor can this phrase be used to denote the world at which we are, for we cannot assume that we are at a single world.

IV. Contingentarianism and Necessitarianism

What could have been otherwise? Nothing, I answer. Things could not have been otherwise. Call this view necessitarianism. Necessitarianism is a radical view. Within contemporary philosophy at least, most accept the negation of necessitarianism: at least some things could have been at least somewhat different from what they are. Call this view contingentarianism.

In this chapter, I introduce contingentarianism (§18) and necessitarianism (§19) in more detail, and briefly discuss the importance that these two theses have in contemporary philosophy. I then address the objection that necessitarianism is obviously false, and thus not a thesis worth considering (§20).

18. Contingentarianism

Contingentarianism — the label is borrowed from Karofsky (2022) — is the view that things could have been otherwise. More precisely, in the framework of the modal problem:

Contingentarianism. At least some c-statement is true.

Equivalently, using talk of contingency: some r-statements are contingently false. In terms of worlds: there are at least two worlds.

It is useful to think of contingentarianism not as a unified doctrine, but rather as a family of more detailed views, all of which have as a consequence that things could have been otherwise, i.e. that some c-statements are true. These more detailed views can be ordered in a spectrum.

At one end of this spectrum, we find the most permissive views. These are the views according to which almost all c-statements are true, so that things could have been otherwise in a very great variety of ways. For example, a permissive view of this kind may not only grant that Socrates could have been a farmer, but also maintain that Socrates could have been a poached egg, and even that Socrates could have been both a poached egg and a farmer at the same time.

(I say that the permissive views are those according to which *almost* all c-statements are true. But what about a maximally permissive view, one according to which *all* c-statements are true? Although such a view technically falls under the definition of contingentarianism, it is uninteresting, because it is obviously false. To see that, let the value of p be the r-statement 'Venus is identical to Venus'. Then, the corresponding instance of $\Diamond p \wedge \neg p$ is clearly a false c-statement. Thus, the maximally permissive view according to which all c-statements are true simply does not get off the ground.)

At the other end of the spectrum, we find the least permissive contingentarianist views. According to these views, only a few c-statements are true, i.e. things could have been otherwise in only a rather limited number of ways. For example, such views may not only deny that I could have been a poached egg, but also deny that I could have been a farmer (rather than a philosopher), or even that I could have been standing (rather than sitting).

Not all contingentarianist views enjoy the same degree of credibility. For example, very unpermissive contingentarianist views — views according to which only a handful of c-statements are true — will be hard to maintain, because r-statements are not typically true or false in isolation. Similarly, extremely permissive contingentarianist views are not especially plausible either. Indeed, there are statements such that it is highly plausible (or even provable) that they are not only false, but necessarily false. More generally, many contingentarianist views that are technically available should be considered implausible. These are the views claiming that some statement is contingently false when it seems that the statement is necessarily false or (perhaps more surprisingly) when it seems that the statement is true. In what follows, I will largely ignore those implausible contingentarianist views. Thus, even though the arguments presented in the following chapters apply to contingentarianism in general, they are mainly aimed at the most plausible contingentarianist views.

Contingentarianism is a standard view within contemporary philosophy. For a start, contingentarianism is explicitly endorsed in a variety of philosophical texts — including very influential ones. In many of those texts, this endorsement takes the form of an unquestioned assumption supporting a complex account. For example, Williamson (2013) starts by 'Things could have been otherwise. It is contingent how they are.' Similarly, Mackie (2006) builds from the basic assumption that 'Things — meaning the

state of the world in general — might have been different from the way they are.' Or consider Lewis (1986, p. 1), where the claim 'things might have been different, in ever so many ways' appears in the second paragraph. The fact that these texts leave their central endorsement of contingentarianism unquestioned is indicative of the fact that contingentarianism is a standard view.

Moreover, and more importantly, contingentarianism is implied by many philosophical texts. For example, consider the literature on material constitution. One of the central questions addressed in this literature is this: is a material object identical to the material stuff that constitutes it? In particular: is a clay statue identical to the lump of clay that constitutes this statue? The following argument supports a negative answer: a clay statue could not be ball-shaped; the lump of clay constituting the statue could be ball-shaped; if the lump of clay could be ball-shaped and the statue could not, the lump of clay is not identical to the statue; therefore, the lump of clay constituting the statue is not identical to the clay statue. Notice that contingentarianism follows from the second premise: if the lump of clay could be ball-shaped (rather than statue-shaped), then something could have been otherwise.

Arguments like the one just mentioned have been widely discussed in the literature on material constitution, e.g. in Wiggins (1968), Gibbard (1975), Baker (1997), Bennett (2004), Koslicki (2018), and many more. In each of those texts, the relevant argument contains a premise that implies contingentarianism. This premise is generally endorsed, either explicitly or implicitly. Even when the premise is rejected (as in Burke, 1994), the fact that it implies contingentarianism is not considered problematic. This indicates that contingentarianism is a standard view within the literature about material constitution.

And the literature about material constitution is far from being exceptional in this matter. Contingentarianism is also a standard view in the vast literature discussing cases such as those introduced in Gettier (1963). These cases are supposed to show that knowledge is not justified true belief. They describe a scenario in which someone has a justified true belief for some proposition and yet does not know that this proposition is true. This scenario is supposed to be a possible one. Indeed: if the scenario is not possible, the desired conclusion cannot be reached. Is the scenario described supposed to be actual as well? For the vast majority of those cases, the answer is negative (although see

Williamson, 2005, p. 12). For example, it would be wrong to understand Case I in Gettier (1963) as implying that there is actually a man who has a justified true belief — but no knowledge — that the chosen candidate has ten coins. Clearly, the scenario described by this case is supposed to be possible, but not actual. But to say that some scenario is possible and not actual is to say that things could have been otherwise. Thus, contingentarianism is implied by the literature discussing those cases.

In the same spirit, cases such as the one introduced in Frankfurt (1969) occupy an important place in contemporary literature about free will. Just as it is for Gettier cases, Frankfurt cases describe a scenario that is supposed to be possible, but not actual. And so, just as Gettier cases, Frankfurt cases imply that something could have been otherwise. Thus, contingentarianism figures as a standard background assumption in many texts discussing those cases.

Or consider the literature about the problem of justice raised against classical act utilitarianism. A statement of the problem starts by introducing a scenario in which what seems to be an unfair action is nonetheless classified as good by act utilitarianism. A famous example is the sheriff scenario (McCloskey, 1957), in which an individual known to be innocent is nonetheless punished to prevent a riot and maximize overall happiness. As for the Gettier and Frankfurt cases, the proposed scenario is typically thought to be possible, but not actual.

Other examples like the four just given can easily be found. A very large number of philosophical texts have as a consequence that at least some things could have been at least somewhat otherwise than they are. This is strong evidence for the claim that contingentarianism is indeed a standard view within contemporary philosophy. Two points reinforced this claim. First, the bodies of literature I mentioned above — the literature about material constitution, about Gettier cases, about Frankfurt cases and about the problem of justice — are typically classified into four different and largely independent areas of philosophy, namely metaphysics, epistemology, philosophy of action and ethics. Second, these four bodies of literature are all foundational: they each occupy a central spot in their respective area of philosophy, they contribute to shaping the debates and views in this area, and they are typically among the first bodies of literature encountered by someone studying this area of philosophy for the first time. Thus, it seems safe to assert that contingentarianism is a standard view within contemporary philosophy.

19. Necessitarianism

Necessitarianism is the view that things could not have been otherwise. More precisely, in the framework of the modal problem:

Necessitarianism. No c-statement is true.

In talk of contingency: every false r-statement is necessarily false. In terms of worlds: there is only a single world. As such, necessitarianism is simply the negation of contingentarianism. According to necessitarianism, the correct solution to the modal problem is the empty set.

It can be useful to think of necessitarianism as the conjunction of the following two claims.

Necessitism. It is necessary what there is.

Superessentialism. It is necessary what properties things have.

Necessitism is an answer to the question of being 'what could have been?'. Superessentialism is an answer to the question of properties 'how could things have been?'. Maintaining these claims together is equivalent to maintaining the necessitarian answer to the modal question 'what could have been otherwise?'. Notice that, given the assumption that a statement saying that something a is can be recast as a statement saying that a has the identity relation to something (§3, §14), superessentialism entails necessitism. So, for the purposes of defending necessitarianism, we can focus exclusively on superessentialism.

It should be noted that the term 'necessitarianism' is sometimes used to label a very different view from the one I am defending here. For example, this is the case in the literature about free will (Pitcher, 1961), natural laws (Bird, 2007) or metaphysical grounding (Skiles, 2015). In these texts, the claim denoted by this word is not the view that things could not have been otherwise, and it typically has very little to do with this view.

Necessitarianism has rarely been defended. To my knowledge, within contemporary philosophical literature, Karofsky (2022) is the only text besides this one where necessitarianism is explicitly endorsed. Note that in this text, 'necessitarianism' label the thesis that 'absolutely nothing about the universe could have been otherwise in any way whatsoever' (p. 1), and 'contingentarianism' holds for

the negation of this view. While the dialectical setting of this text is different from mine, the view it defends is largely aligned with my own.

Just like I will do in the following chapters, Karofsky attacks contingentarianism on the grounds that there is no evidence warranting this view. However, her approach differs from mine, in that she focuses on particular theories of metaphysical modality. In particular, building on an argument in Shalkowski (1994), she complains that among three theories of modality – combinatorialism (in the line of Armstrong, 1989, 1997), dispositionalism (see §34) , and modal realism (D. K. Lewis, 1986) – none manages to avoid brute (or unexplained) contingencies.

I believe that there are two main shortcomings with this approach. First, the issues raised by Karofsky may not be issues with contingentarianism in general, but rather with the specific theories of modality under question. That is, it is hard to see how Karofsky's critique of these theories can be expanded to contingentarianism in general. Second, even if Karofsky's argument goes through and brute contingencies cannot be avoided under contingentarianism, it is far from clear that this constitutes a real problem for the friend of contingentarianism. Indeed, it seems that they can always bite the bullet and simply accept brute contingencies. Perhaps brute contingencies (as any other brute entities postulated by a theory) are somewhat suspicious. But they are certainly not so problematic as to be fatal to any view taking them onboard. This is especially true if the view is otherwise well supported, as contingentarianism is according to many of its proponents.

If we turn our attention to the history of necessitarianism in Western philosophy, the closest we can get to an endorsement of necessitarianism is the first part of Spinoza's *Ethics*, in particular the following passage:

> P29: In nature there is nothing contingent, but all things have been determined from the necessity of the divine nature to exist and produce an effect in a certain way. (Spinoza, 1677/1985, p. 433)

Spinoza's claim here is tightly linked to his conception of God. Spinoza maintains that God necessarily exists and necessarily has the nature that it has. More importantly (and more surprisingly), Spinoza claims that everything necessarily follows from God's nature. It is on these grounds that Spinoza argues for the view expressed in the passage just quoted.

Interestingly, it is a controversial matter whether Spinoza is indeed committed to necessitarianism or if he can instead be interpreted as taking the more moderate view that 'in addition to the actual world, in which we exist, there are, in Leibniz's language, other possible worlds in which we do not exist' (Curley & Walski, 2002). Since my goal is not to defend a particular interpretation of Spinoza, I stay neutral on this point and leave the matter in more competent hands. The reader interested in this debate may refer to Newlands (2022) for a general overview and a list of references.

Leibniz is another author whose writings have been examined in relation to necessitarianism. According to some interpretations (Mates, 1972; Monadori, 1973, 1975; Brody, 1980, pp. 124–125), Leibniz is committed to superessentialism, the thesis that everything has all of its properties necessarily. This interpretation is based in part on Leibniz's account of individual substances:

> We have said that the notion of an individual substance includes once and for all everything that can ever happen to it, and that by considering this notion, one can see in it everything that can be truly stated about it, as we can see in the nature of the circle all the properties that can be deduced from it. (Leibniz, 1686/2020, p. 17)

While superessentialism is not necessitarianism, it is certainly not remote from it. Indeed, as already mentioned, superessentialism together with the view that claims of existence can be recast as claims of identity (or of having some property or relation) yields necessitarianism.

However, it should also be noted that a rather explicit denial of necessitarianism – in particular, of necessitism – can be found elsewhere in Leibniz's work.

> I found myself very close to the opinions of those who hold everything to be absolutely necessary […]. But I was pulled back from this precipice by considering those possible things which neither are nor will be nor have been. For if certain possible things never exist, existing things cannot always be necessary; otherwise it would be impossible for other things to exist in their place, and whatever never exists would therefore be impossible. For it cannot be denied that many stories, especially those we call novels, may be regarded as possible, even if they do not actually take place in this particular sequence of the universe which God has chosen – unless someone imagines that there are certain poetic regions in the infinite extent of space and time where we might see wandering over the earth King Arthur of Great Britain, Amadis of Gaul, and the fabulous Dietrich von Bern invented by the Germans. […] This opinion cannot be defended, for it would obliterate all the beauty of the universe and any choice of matters, not to mention here other grounds on which the contrary can be shown. (Leibniz, 1679/1989, p. 263)

Clearly, this passage expresses and argues for the view that there are possible things which are not, i.e. it rejects necessitism. These and related considerations have been used as a ground to attack the view that Leibniz is indeed committed to superessentialism (Hunter, 1981; Cover & Hawthorne, 1992). Again, since it is not my goal here to comment on Leibniz's work, I am happy to leave the matter into more competent hands.

Even though necessitarianism has rarely been explicitly endorsed, one may wonder whether some philosophical views are implicitly committed to necessitarianism. Does it follow from some view defended in contemporary philosophical literature that no c-statement is true? I am hard-pressed to find such a view. Some readers may think this is surprising. For example, the claim that agents could not do otherwise — a view discussed in the context of hard determinism (Caruso, 2013) — seems like a good candidate for a commitment toward necessitarianism. Similarly, the claim — defended notably by proponents of scientific essentialists (Bird, 2007; Ellis, 2001) — that laws of nature are necessary may appear to entail necessitarianism.

One should be cautious here. These views are certainly compatible with necessitarianism. And perhaps necessitarianism becomes the best or most natural answer to the modal question when one of these views is adopted. Yet, these views alone do not entail necessitarianism. That no instance of $\Diamond p \wedge \neg p$ is true when the value of p describes some action (or when the value of p is a law of nature, etc.) does not entail that no instance at all of $\Diamond p \wedge \neg p$ is true.

20. Is Necessitarianism Obviously False?

The present text attempts to defend necessitarianism. One may wonder whether this is a futile endeavour. Isn't necessitarianism obviously false and contingentarianism obviously true? Is it not very easy to know that necessitarianism is false and contingentarianism is true? It is not.

Some statements are obviously false because their negation can be derived from some (implicit or explicit) definitions and axioms by following a short or well-known sequence of steps, so that it is easy to show that they are false. For example, it is obviously false that some bachelor is married. Given the (implicit) definition of 'bachelor' as 'unmarried man', it immediately follows that all bachelors are

unmarried. Or, to use an example closer to our current discussion, consider a contingentarianist view according to which Venus could both be a moon and not a moon. This view is obviously false: there is no function from properties to sets of things such that *being a planet* is mapped to a set that both contains and does not contain Venus (since there is no such set). So, even without knowing anything about which functions from properties to sets of things determine what is possible, we know that it is not possible that Venus is both a moon and not a moon.

More generally, a statement is obviously false if we have excellent reasons to think that it is false. One way to gain such reason is to derive the negation of the statement, but this may not be the only way. Thus, even if 'I have three hands' cannot be shown to be false in the same way as 'some bachelor is married', perhaps this statement should also be classified as obviously false.

Whether 'I have three hands' should be classified as obviously false or not, one thing is certain: necessitarianism is not obviously false. There is no good reason to reject necessitarianism, because, as I will argue in the next few chapters, there is no good reason to maintain that some c-statement is true. This result is surprising. I readily agree that necessitarianism *seems* obviously false. It seems like it should be easy to show that necessitarianism does not hold, even though it is not. What explains our error here?

One reason is that necessitarianism seems false (at least, it seems false to me) and that we tend to think that what seems false can easily be shown to be false. This tendency is far from irrational. After all, it does seem to me that Venus could not be both a planet and not a planet, even before I show that it is so. Yet, one should not put too much weight on this. For example, before I came across Hilbert's Hotel thought experiment, it seemed false to me that a proper subset could have the same number of elements as its superset.

Another reason why necessitarianism appears obviously false is that its negation is a consequence (implicit or explicit) of most philosophical views, as we have seen. And just as we are inclined to think that a view is obviously false if it seems false, we are inclined to think that a view is obviously false if it is standardly held as false. Yet, here also, caution is warranted. Contingentarianism is not standard because it has been shown to be true, only because it is assumed to be true. Contingentarianism is not

to philosophy what evolutionary theory is to biology. (This does not mean that one should be particularly sceptical of philosophy, or of those philosophical theories that rely on contingentarianism. Every field or theory will rely on unquestioned assumptions. Sometimes, however, it is fruitful to question these assumptions.)

So, contrary to what it may seem at first glance, necessitarianism is not obviously false. Yet, one may still wonder whether the view is worth seriously considering. The idea is that given the limited resources at our disposal, we need to focus our inquiry on only some claims, namely those claims for which there are both *prima facie* reasons to think that they are true and *prima facie* reasons to think that they are false. Since there is no *prima facie* good reason to maintain necessitarianism (after all, the view *does* seem to be false, at least to me), necessitarianism is not worth seriously considering — just as it is not worth seriously considering the claim that the Moon is made of cheese.

I agree that we should not seriously consider the claim that the Moon is made of cheese. Yet, there is an important difference between that claim and necessitarianism. Indeed, as we have seen, the negation of necessitarianism is an unquestioned assumption in many philosophical views. Thus, much more depends on the truth of necessitarianism than does on the truth of 'the Moon is made of cheese' (as far as philosophy is concerned, at least). If necessitarianism turns out to be true, this will be grounds to reconsider the many philosophical views which rely on its negation. By contrast, if necessitarianism turns out to be false, this will render the foundations of those philosophical views and methods firmer. So, while there is little motivation to spend our resources on 'the Moon is made of cheese', there are good reasons to use our resources on necessitarianism.

In this chapter, I have introduced necessitarianism and contingentarianism, briefly highlighting their role in contemporary philosophy. I have also pointed out that, contrary to appearances, necessitarianism is not obviously false. Of course, necessitarianism is not obviously true either. Neither necessitarianism nor its negation can be derived from definitions and axioms in a short or well-known sequence of steps. How, then, are we to decide which of necessitarianism or contingentarianism is true? More generally,

how are we to determine which c-statements are true and which are false? In short: how are we to solve the modal problem?

As we saw (§9), the answer is that we consider for each c-statement the evidence for (and against) it, and consider whether this evidence is enough to warrant the c-statement (or its negation). The task is less daunting than it sounds. Indeed, in this case, many distinctions between c-statements can safely be abstracted away. For example, as far as the task of finding evidence is concerned, there is little reason to treat 'Venus could be a moon' any differently than 'Mars could be a star'. So, rather than considering each c-statements individually, we can consider only a few kinds of c-statements, or even talk about c-statements in all generality. Moreover, since the truth of a single c-statement is enough to ensure that necessitarianism is false, we can focus primarily on the most credible c-statements and presume that if there is no (warranting) evidence for those, there will not be (warranting) evidence for the less credible statements either.

V. A Challenge for Modal Rationalism

What evidence is there that things could have been otherwise? According to modal rationalism, evidence for a mere possibility is provided by the occurrence of a particular mental state. For example, the modal rationalist may claim that my imagining a cube-shaped planet is evidence that cube-shaped planets are possible – in somewhat the same way that my seeing a sphere-shaped planet is evidence that there is some sphere-shaped planet. In this chapter, I challenge this answer. I argue that appealing to intuition, imagination, and the like is useless for deciding what could or could not be the case. My argument is based on the following core claim: as far as evidence for the merely possible is concerned, actual mental faculties have no particular advantage over merely possible faculties.

I begin by presenting the central principles of any modal rationalist view (§21). I then give an overview of my arguments against modal rationalism: I show under modal rationalism there is evidence for more possibilities than expected (§§22–24), and that if modal rationalism warrants a statement, it also typically warrants the negation of this statement (§25). Next, I introduce a particular version of modal rationalism based on intuitions and state my argument against it (§26). Using this example as a basis, I defend the core claim of my argument (§27). I then show how my argument applies to conceivability-based versions of modal rationalism (§28). Finally, I point out that my argument can also be applied against views that are not modal rationalists (§29).

21. Modal Rationalism

Consider an instance of $\Diamond p$ where p is a false r-statement. For example,

(1) It is possible for Venus to be a moon.

What evidence, if any, is there for (1)? Here, a *prima facie* promising line of answer is to point to the occurrence of some intentional mental state – more precisely, to the fact that some mental state of a

particular kind and with a particular content is occurring. For example, one may point out that it seems to them that Venus could be a moon and maintain that this seeming is evidence for (1). Or one may point out that they are able to imagine Venus being a moon, and insist that this imagining is evidence for (1).

These answers are versions of modal rationalism, a popular view within the epistemology of modality. Roughly speaking, modal rationalism is the view that statements of mere possibilities are supported by the occurrence of a particular kind of mental state. Versions of modal rationalism disagree about what the relevant kind of mental state is. It has been suggested that 'intuitions are the primary source of modal knowledge' (Bealer, 2002, p. 11, see also 2005). Another suggestion is that the relevant mental state is one produced by an exercise of the imagination. We come to know that something is possible when 'we try to imagine that something holds; we find that we can imagine that it does; and we infer that it is possible' (Gregory, 2004, p. 327; see also Hart, 2009; Ichikawa & Jarvis, 2012; Kung, 2010; Sosa, 2000). Perhaps most famously, the relevant mental state has also been taken to be a conceiving: 'one argues that some state of affairs is conceivable, and from there one concludes that this state of affairs is possible' (Chalmers, 2002, p. 146, see also 2006; Yablo, 1993, 2008; Geirsson, 2005; Kment, 2021, sec. 5). The remainder of this section characterizes modal rationalism in more details.

Remember (§9) that the task of finding out whether there is evidence for a statement $\Diamond p$ can be divided into two subtasks: (i) find a statement e such that, if e is true, there is evidence for $\Diamond p$; (ii) determine whether e is indeed true. Modal rationalism is concerned with the first of these subtasks. According to modal rationalism, e is a statement maintaining that some intentional mental state whose content involves p occurs. For example, e may be taken to be 'there is an imagining that p' or 'there is an intuition that $\Diamond p$'.

At this point, two terminological clarifications are in order. First, in this context, 'an intentional mental state' is a mental state whose content is a proposition. Here, a proposition is roughly construed as the meaning of a statement. Thus, presumably, the two statements 'Venus orbits the Sun' and 'the Sun is orbited by Venus' express the same proposition. The content of an intentional mental state is the proposition expressed by the statement following the 'that' clause in the natural expression of this mental

state. For example, if I believe that Venus could be a moon, the content of my belief is the proposition expressed by the statement 'Venus could be a moon'. (For short: the proposition 'Venus could be a moon'.) Second, by saying that the content of a mental state *involves* p, I simply mean that the content is either the proposition p or a proposition built from p by applying the standard sentential operators of classic and modal propositional logic. For example, a belief that p, a belief that $\neg p$, a belief that $p \wedge q$ and a belief that $\Diamond p$ are all mental states whose content involves p.

Modal rationalism sometimes emphasizes not the occurrence of the mental state, but rather the ability to have this mental state. In those cases, e becomes a statement claiming that the ability to have the mental state exists (or that someone has this ability), e.g. 'it is imaginable that p', 'it is intuitive that $\Diamond p$', etc. As the reader may note, such an account raises several questions.

On the one hand, we have metaphysical issues, i.e. issues regarding the nature of such abilities. What exactly does it mean to be able to have a mental state? I am able to imagine that Venus is a moon. Does this suppose that I have a potentiality (Vetter, 2013, 2015), a special causal power (Alvarez, 2013; Steward, 2020) or a particular disposition (Fara, 2008; Vihvelin, 2004)? Or should we rather stay in what is sometimes called the Humean tradition and maintain that my ability to imagine that p is just a special case of the possibility for me to imagine that p?

On the other hand, we have epistemological issues, i.e. issues regarding how we can gain knowledge of (or evidence for) there being an ability to have a mental state. We gain knowledge that some mental state occurs through introspection or testimony. How do we gain knowledge that there is an *ability to* have some mental state? How do I know that I am able to imagine that Venus is a moon? It has been recently suggested that knowledge of our ability is linked to our status as agents and our perception of affordances in our environment (Vetter, 2020, 2023). Even if we adopt this account, it is not entirely clear how it applies to our case, for it is not entirely clear what affordance (if any) is related to my ability to imagine that Venus is a moon.

I will go into some of these issues in more detail in the next chapter. For now, we need not worry too much about those points. If we grant to the modal rationalism that there is an ability to have the relevant intentional mental state (that it is imaginable that p, that it is intuitive that $\Diamond p$, etc.), there is little need

to say what this ability consists in exactly. Similarly, for our purposes, it is enough to notice that I am indeed able to imagine that Venus is a moon. We do not also need to determine *how* I know that I have this ability.

According to modal rationalists, the occurrence of the mental state (or the ability to have the mental state) is not always enough to provide evidence for the relevant instance of $\Diamond p$. Often, the occurrent mental state in question must also satisfy additional constraints, the exact nature of which depends on the version of modal rationalism at hand. In many cases, these will be constraints regarding the subject of the mental state. To use a simple example, perhaps my imagining that Venus is a moon only counts as evidence for (1) if I am in full possession of my mental faculties, i.e. not drunk, not feverish, etc. Or perhaps my intuition that Venus could have been a moon only counts as evidence for (1) if I am familiar enough with the concepts involved in (1), i.e. with the concept of Venus, with the concept of being a moon, etc. These additional constraints may be explicit in the statement e which is supposed to be evidence for $\Diamond p$. For example, the modal rationalist may maintain that e is 'there is an intuition that $\Diamond p$ *and the subject of this intuition is familiar with the concepts involved in* p*'*. Alternatively, these constraints may not be mentioned directly in e, but instead come packaged with the notion of the mental state at play here. For example, the modal rationalist may insist that an intuition that $\Diamond p$ (or an intuition of the relevant kind) presupposes familiarity with the concept involved in p.

Let us summarize. Modal rationalism about $\Diamond p$ is the view that if a statement e is true, there is evidence for $\Diamond p$. Here, e states that there is an occurrence of an intentional mental state of some specific kind, whose content involves p. Alternatively, e may state that there is an ability to have this mental state. In addition, e may also specify some constraints that the occurrent mental state (or ability) must satisfy. For example, e may be 'there is an intuition that $\Diamond p$', 'there is an intuition that $\Diamond p$ whose subject is in full possession of their mental faculty', 'there is an ability to imagine that p, where the subject is done by someone familiar with the content of p', etc. Letting m_p stand for such a statement, modal rationalism about $\Diamond p$ can then be characterized as the view that

> if m_p, there is evidence for $\Diamond p$.

Notice that according to this characterization of the view, one may be a modal rationalist about only some instances of $\Diamond p$. For example, one may technically be a modal rationalist about (1), but not about

(2) It is possible for Venus to be cube-shaped.

Similarly, one may adopt a different version of modal rationalism depending on the instance of $\Diamond p$ at hand. For example, one may maintain that (1) must be supported by an intuition that Venus could have been a moon, but insist that (2) must be supported by imagining that Venus is cube-shaped.

In practice, modal rationalists do not typically proceed piecemeal. Instead, they rely on a general evidential principle. They do not merely maintain that (say) imagining that Venus is a moon is evidence for (1). Rather, they claim that there is a set of statements P such that the schema 'if someone imagines that p, there is evidence that $\Diamond p$' holds for all $p \in P$. Versions of modal rationalism may differ regarding what the set P of relevant statements is exactly. In principle, a version of modal rationalism may only be concerned with a restricted set of statements — those about ordinary objects, say — or even with a single statement — sentence (1), say. However, in practice, versions of modal rationalism discussed in the literature typically try to be maximally general, so that they are very liberal regarding the statements in P.

Since the modal problem is the task of determining what c-statements are true, I am only interested here in versions of modal rationalism that aim to establish the truth of $\Diamond p$. Thus, in what follows, I will suppose that the sentence e presented by the modal rationalist is not merely evidence for $\Diamond p$, but warrants the conclusion that $\Diamond p$. That is, I will assume that e is such that if it is true, $\Diamond p$ can safely be considered to be true as well. To be clear, my point is not that according to modal rationalism, the occurrence of the relevant mental state (or ability) entails $\Diamond p$. Whether this is the case is controversial (see e.g. Balog, 1999; Chalmers, 2002, 2009; Frankish, 2007; Hill, 1997) and I do not wish to take a stance in this debate. I only claim that if something satisfies the description given by m_p, we can confidently treat $\Diamond p$ as true. Such cases are familiar. For example, consider 'the probability of my lottery ticket to be a winner is about 10^{-9}'. Knowing that this sentence is true allows me to confidently treat 'my lottery ticket is a loser' as true, even though the former sentence does not entail the latter.

Before closing this section, it is worth insisting on the following point: according to modal rationalism, what counts as evidence for mere possibilities is the *occurrence* of an intentional mental state (belonging to some kind, with some particular propositional content, whose subject satisfies some conditions, etc.). For example, suppose that the modal rationalist maintains that the true sentence

(3) There is an intuition that $\Diamond p$

is evidence that $\Diamond p$. In this context, (3) should be taken to assert the existence of a *token* state – not (or at least not only) as asserting the existence of a type.

Notice that if a mental state occurs, then it occurs in a subject. So, for example, if (3) is read as asserting the existence of a token intuition, (3) is true iff there is a subject S such that S intuits that $\Diamond p$. Given this, the modal rationalist has a natural way to capture the relation between a piece of evidence for $\Diamond p$ and the subject of this evidence: an occurent mental state is evidence for S iff the subject of this mental state is S. For example, (3) is evidence *for me* that $\Diamond p$ iff what makes (3) true is *my* intuition that $\Diamond p$. In what follows, I will largely ignore this complication. Indeed, I am ultimately interested in determining whether there is evidence for $\Diamond p$. For this purpose, it matters little who the subject of the evidence is.

22. Evidential Explosion

As the above discussion suggests, modal rationalism is a rather heterogeneous view. Modal rationalism comes in many different flavours, depending on what the relevant mental state is taken to be. Thus, it will perhaps come as a surprise that any version of modal rationalism faces the same difficulty. Indeed, together with an uncontroversial methodological principle, modal rationalism yields evidence for more statements of form $\Diamond p$ than one would expect. That is, if modal rationalism is true, not only is there evidence for 'Neptune could have been discovered in 1847 (rather than 1846)'. There is also evidence for such statements as 'Neptune could have been a poached egg' and 'Neptune could have been a prime number'.

The idea that modal rationalism tends to support too many possibilities is not novel. The problem of modal epistemic friction (Vaidya & Wallner, 2021; Mallozzi, 2021b, p. 1317) highlights the difficulties for versions of modal rationalism based on imagination or conceivability to introduce a distinction

between those scenarios that represent genuine possibilities and those that do not. Specifically, the complaint is that these versions of modal rationalism largely ignore constraints on possibilities related to the essence of things. Although one can conceive of a scenario in which some celestial body is cube-shaped and stipulate that this celestial body is a planet, this is not enough evidence to conclude that a cube-shaped planet is possible. Indeed, one has to first make sure that the stipulation is permissible given essentialist constraints, i.e. they have to ensure that it is not in the essence of a planet to be sphere-shaped (or, more generally, that the essence of a planet does not exclude it being cube-shaped).

While the problem of modal epistemic friction raises genuine worries for some versions of modal rationalism, we cannot just leave the matter there. First, it is unclear that the problem applies similarly to versions of modal rationalism that are based on intuitions and other mental states besides imagination or conceiving. Second, it is unclear why the modal rationalist could not amend their view to include the required essentialist constraints. For example, just as they may require that the subject of the mental state is in normal epistemic conditions, they may require that the content of the mental state does not violate truths about the essence of things. Of course, this supposes that the modal rationalist also says some words about what the relevant essentialist truths are and about how we can come to know these truths. But what would prevent them from doing this? Third, it is unclear why the modal rationalist cannot return the objection against their adversaries. A scenario in which some planets are cube-shaped, they will say, *does* respect essentialist constraints: it is not in the essence of planets to be sphere-shaped. And we know that it is not in the essence of planets to be sphere-shaped precisely because we can imagine or conceive of such a scenario. Thus, in the current dialectical setting, another argument against modal rationalism is needed.

The argument I propose below relies on what I call the principle of Neutrality. Roughly, this methodological principle states that when it comes to finding whether there is evidence for a statement, one does not arbitrarily select what counts as evidence. To illustrate, suppose that Ann and Bob both see a cat. The principle of Neutrality states that, unless one has a good reason not to do so (e.g. Bob was hallucinating), one should count 'Ann sees a cat' as evidence that there is a cat iff one counts 'Bob sees a cat' as evidence that there is a cat. To use a slightly more complicated example, suppose that (i) Ann

sees a cat on the road, (ii) Bob sees no cat there, and (iii) Ann and Bob are otherwise in exactly the same epistemic situation. Given this last condition, it is clearly methodologically unacceptable to maintain that there is evidence for 'there is a cat on the road', but that there is no evidence for the negation of this statement.

More generally, the principle of Neutrality says that if a statement e_1 is evidence for p_1 but a statement e_2 is not evidence for p_2, then there is a good reason why this is so. Given the current dialectical settings, this idea is best rendered as follows.

> *Neutrality*. If 'if e_1, there is evidence for p_1' is true but 'if e_2, there is evidence for p_2' is false, then there is a good reason why this is so.

I will now argue that if we adopt a version of modal rationalism respecting Neutrality, we must grant that we have evidence for many more statements of mere possibilities than one would expect. Consider any instance of $\Diamond p$, e.g. 'it is possible for Neptune to have been discovered in 1847'. Assume some version of modal rationalism about this instance of $\Diamond p$, call it MR:

> *MR*. If m_p, there is evidence for $\Diamond p$.

Now, consider any instance of $\Diamond q$, e.g. 'it is possible for Neptune to be a poached egg'. The following argument leads us to the conclusion that there is evidence for $\Diamond q$.

(A1) $\Diamond m_q$.

(A2) If $\Diamond m_q$, there is evidence for $\Diamond q$.

(A3) So, there is evidence for $\Diamond q$.

Here, m_q is simply the statement m_p where p has been replaced by q. For example, if m_p is 'it is intuitive that $\Diamond p$', m_q is 'it is intuitive that $\Diamond q$'. The next two sections each discuss one of the premises of this argument.

23. Possible Minds

In some cases, establishing (A1) will be no harder than just pointing out that there actually is a mental state involving q and satisfying the conditions set by MR. If I have an intuition that Neptune could be a

poached egg, then, obviously, it is possible that something is this intuition. However, in many cases, there is no mental state involving q satisfying the relevant condition, so this strategy will not work. But we can handle those cases in another way. Notice that (A1) is itself an instance of the schema $\Diamond p$. This means that it can be argued for in the modal rationalist fashion.

Roughly put, the argument goes like this. Granted, there is no relevant mental state involving q. However, there is a relevant mental state *about* a relevant mental state involving q. For example, even though I do not have the intuition that Neptune could be a poached egg, I have the intuition that someone could have the intuition that Neptune could be a poached egg. But there is no good reason why this second-order mental state should not count as evidence for $\Diamond m_q$ if m_p counts as evidence for $\Diamond p$. So, just as we conclude $\Diamond p$, we conclude $\Diamond m_q$.

It is worth being a bit more precise. Let r abbreviate m_q. Then, the argument for (A1) runs as follows.

(B1) m_r.

(B2) If m_r, there is evidence for $\Diamond r$.

(B3) So, there is evidence for $\Diamond r$.

Again, m_r is simply m_p where p has been replaced by r. For example, let m_p be

(1) There is an intuition that $\Diamond p$.

Then, m_r is 'there is an intuition that $\Diamond r$', i.e.

(2) There is an intuition that it is possible for there to be an intuition that $\Diamond q$.

Thus, m_r claims that there is a mental state involving r, and that this mental state satisfies the same conditions as those set by MR regarding the mental state involving p.

The occurrence of the mental state involving r is typically no more difficult to establish than the occurrence of the corresponding mental state involving p. That is, the relevant instance of m_r is not less supported than the corresponding instance of m_p. For example, there is no less support for (2) than there is for (1). Of course, this is not to say that m_r is easy to establish. In particular, if the constraints that

the mental state must satisfy are complex, establishing the truth of m_r may be an ordeal. In fact, in some cases, establishing the truth of m_r might turn out to be so hard that it cannot be done at all. But the point is that it will always be at least as hard to establish the truth of m_p.

Why do I claim that m_r is typically not harder to establish than m_p? Unfortunately, I do not have a satisfactory argument in favour of this claim. The best I can do is say that the principle appears to hold for every version of modal rationalism on the market – including those discussed later in this chapter (§26, §28). At any rate, I have not yet met a version of modal rationalism in which it is typical that an instance of m_r is not supported, even though the corresponding instance of m_p is. If there is such a version of modal rationalism, it manages to escape my argument.

Note that I do not claim that m_r is *always* at least as easy to establish as the corresponding instance of m_p. Nor do I claim that any instance of m_r is true. I leave it open that in some cases, the relevant second-order mental state simply does not exist. If so, adopting modal rationalism does not force us to accept that there is evidence for the instance of $\Diamond q$ under consideration. This does not affect my main point. My goal is to show that, under modal rationalism, there is evidence for more instances of $\Diamond q$ than one would expect — not that there is evidence for any instance of $\Diamond p$.

The second premise (B2) is simply modal rationalism about $\Diamond r$. Given that we are assuming MR and that there is no good reason to accept MR but not (B2), Neutrality tells us that this premise is true. From there, we conclude that there is evidence for $\Diamond r$. But remember that we are only interested in versions of modal rationalism that *warrant* mere possibilities. So, by hypothesis, m_p is such that if it is true, the conclusion that $\Diamond p$ is warranted. If this is not the case, necessitarianism is safe from MR anyway, and we can stop the discussion here. Thus, similarly, m_r is such that if it is true, the conclusion that $\Diamond r$ is warranted. So, we can be confident in treating $\Diamond r$ as true. Since $\Diamond r$ is just (A1), the argument ends here.

One may worry that this argument brings us dangerously close to contingentarianism. For surely, in many cases, r will be false. Even though it could be intuitive that Neptune is a prime number, it is in fact not intuitive that Neptune is a prime number. Combining this result with the conclusion of the

argument in this section, we get $\Diamond r \wedge \neg r$. And this looks a lot like a c-statement. Doesn't this defeat my defence of necessitarianism, then?

It does not. We only get $\Diamond r \wedge \neg r$ by assuming that some version of modal rationalism is true. Given this assumption, it should not come as a surprise that contingentarianism can be established. The point here is to show that if we adopt modal rationalism, we get an undesirable result, namely that there are many more warranted c-statement than we expect. (Note that since the assumption that modal rationalism holds does not yield a contradiction, this is not quite a *reductio ad absurdum* – but see §25.)

24. Possible Minds and Evidence

Let us now turn to (A2), the second premise of my main argument. The central idea behind this premise is roughly this: if one holds that an *actual* mental state can serve as evidence for $\Diamond p$ under some conditions, one should hold that a *merely possible* mental state which satisfies the same conditions can serve as evidence for $\Diamond p$ as well. More precisely, I will argue that one who accepts

MR. If m_p, there is evidence for $\Diamond p$

should also accept

P-MR. If $\Diamond m_p$, there is evidence for $\Diamond p$.

P-MR is similar to MR. However, according to P-MR, the *possibility* that m_p is true is enough to provide evidence for $\Diamond p$. If it is possible for something to satisfy the description given by m_p, there is evidence for $\Diamond p$ — even if nothing actually satisfies this description. For example, suppose that m_p is 'it is intuitive that $\Diamond p$'. Here, MR is the view that if it is intuitive that $\Diamond p$, there is evidence for $\Diamond p$. Thus, P-MR is the view that if *it is possible that* it is intuitive that $\Diamond p$, there is evidence for $\Diamond p$.

Once P-MR has been granted by the modal rationalist, (A2) can be established without much trouble. For if the truth of $\Diamond m_p$ is enough to provide evidence for $\Diamond p$, we can be confident that the truth of $\Diamond m_q$ is also evidence for $\Diamond q$. Indeed, remember that m_q is just m_p where p has been replaced by q. So, by hypothesis, the mental state (or ability) mentioned in m_q satisfies exactly the same conditions as the one mentioned in m_p. For example, if m_p is the claim that someone familiar with the meaning of p

has a clear intuition that p, m_q is the claim that someone familiar with the meaning of q has a clear intuition that q. (Note that, often, m_p is true while m_q is false. But this is irrelevant to the present argument. What matters here is that m_q, just like m_p, is *possible*.)

Why do I say that if one accepts MR, one should maintain P-MR as well? The reason is not that I think that P-MR can be derived from MR. Rather, my point is that it is a methodological requirement to accept P-MR if MR is taken to hold. At least, it is a requirement given the principle of Neutrality. I will now present this point in more detail.

To begin, notice that if contingentarianism is true and there are mere possibilities, these are sometimes perfectly suitable pieces of evidence. Of course, I do agree that mere possibilities do not generally enter into account when we are looking for evidence. For example, consider the following sentence:

(1) There is a planet orbiting beyond Neptune.

Is there evidence for (1)? Presumably, the answer is affirmative. Facts about the orbits of Uranus and other distant objects of the Solar System are pieces of evidence for this statement. But the fact that I could have seen (or, if you prefer, that I could have had a visual impression of) a trans-Neptunian planet is clearly not evidence for (1).

Crucially, what is at issue here is not whether there is such a fact. Indeed, assuming contingentarianism, it is presumably true that I could have seen a trans-Neptunian planet. And clearly, one who wishes to deny that this seeing is evidence for (1) does not need to take a stance about contingentarianism, or about the modal question more generally. Rather, the issue here is that facts about what is merely possible are not the kind of facts that are suitable pieces of evidence for (1).

Granted. But even though a merely possible seeing (a merely possible visual impression) of a trans-Neptunian planet is not evidence for (1), it is, under the right conditions, evidence that (1) is possible, i.e. evidence for

(2) It is possible that there is a planet orbiting beyond Neptune.

More precisely, a merely possible seeing is evidence for (2) if it satisfies the right conditions, namely those that an actual seeing of a trans-Neptunian planet should satisfy to be evidence for (1). Thus,

presumably, a merely possible seeing is not evidence for (2) if it is caused by a defect on the lens of one's telescope, or by a mad scientist playing with one's auricular nerves. But not every possible seeing of a trans-Neptunian planet is produced in this way. At some worlds, there is a seeing of a trans-Neptunian planet that is produced in a way very similar to the way an actual visual seeing of Neptune is produced. More generally, at some worlds — worlds at which (1) is true — there is a seeing of a trans-Neptunian planet that satisfies the same conditions that an actual seeing would have to satisfy in order to be evidence for (1). This merely possible seeing is evidence for (2).

So, a merely possible seeing is sometimes evidence for what is merely possible. Moreover, if the modal rationalist is correct, an actual mental state satisfying the right conditions is evidence for $\Diamond p$. Given this, it is not implausible that a merely possible mental state satisfying the right conditions is also evidence for $\Diamond p$. Of course, this alone does not suffice to establish that P-MR holds if MR does. But it should at least dissipate some of the initial reservations one may have about this claim. Assuming there are merely possible mental faculties, it is not particularly suspicious that those are suitable pieces of evidence for mere possibilities.

Additional support for the claim that P-MR holds if MR does is provided by an appeal to Neutrality. Indeed, I claim that there is no good reason why MR is true and P-MR is false. Thus, according to Neutrality, either both MR and P-MR are true, or neither of them is. Of course, this only works if I am right in maintaining that there is no good reason why MR is true and P-MR is false.

But, surely, this is wrong. The discrimination between actual and merely possible pieces of evidence cannot be as arbitrary as I suggest. In particular, there must be a good reason to count as evidence only the things that are a mental state satisfying the relevant conditions and to discard the things that could be such a mental state, but are not. More compactly: there must be a good reason to consider as evidence only the actual mental state (satisfying the relevant conditions) and to ignore the merely possible ones. But what reason?

At first glance, the following reason is a promising suggestion: an actual mental state is real (alternatively: actual, existent, concrete, etc.), while a merely possible one is not. But what does 'not

real' ('not actual', 'not existent', 'not concrete', etc.) mean here? More precisely, how are we to interpret the phrase

(3) A merely possible mental state is not real

in the present context?

Under one available interpretation, (3) means that there is no such thing as a merely possible mental state. In this case, 'not real' is used in a similar way as in the most natural reading of 'unicorns are not real'. If (3) is understood in this way, then every possible mental state is actual, so that $\Diamond m_p$ is true only if m_p. Perhaps this is right. (As a necessitarian, I certainly believe it is.) But in any case, this shows that the interpretation is irrelevant to the present discussion. Indeed, we are interested in finding a reason why *if there are merely possible mental state*s, these do not count as evidence — a reason why if $\Diamond m_p$ is true, it is not evidence for $\Diamond p$ even though m_p is.

Under another interpretation, (3) means that a merely possible mental state is not a mental state at all. In this case, 'not real' is used in a similar way as in the most natural reading of 'this gun is not real; it is only a movie prop'. So, according to this interpretation, a merely possible intuition that $\Diamond p$ is not an intuition that $\Diamond p$. But this interpretation also is irrelevant to the present discussion. What we are looking for is precisely a reason why some things — those things that are mental states satisfying the relevant conditions — count as evidence, while other things — those things that are not mental states satisfying the relevant conditions, but could be — do not.

Perhaps (3) is used to signal that a merely possible mental state lacks some feature that an actual mental state has. For example, (3) may be used to convey the thought that a merely possible mental state is not spatiotemporally located, not causally efficient, not primitive, not produced in the expected way, etc. Even assuming that a merely possible mental state does indeed lack the property in question, this alone is hardly a reason to count only actual mental state as evidence. All of Bob's seeings lack a feature that Ann's seeings have, namely, they do not have Ann as their subject. Yet, this is clearly not a reason to dismiss Bob's seeings. It is not especially controversial that merely possible mental states have (perhaps vastly) different features than actual mental states. But, given Neutrality, the question here is *why* this

difference makes it that only actual mental states are appropriate pieces of evidence for mere possibilities.

Perhaps (3) has another interpretation than the three just discussed, one that makes it clear why being not real (in that sense) makes something unsuitable to be a piece of evidence for an instance of $\Diamond p$. If so, I do not know what this alternative interpretation is. In any case, this discussion should serve to illustrate that giving a good reason to choose MR over P-MR is not as easy as it looks at first glance.

Of course, this hardly closes the matter regarding P-MR. Below, I will consider and reject two additional reasons for the claim that actual mental states are to be preferred over merely possible ones where evidence for mere possibilities is concerned. However, before that, I wish to make it clear why the conclusion of my main argument, (A3), is a problem for the modal rationalist.

25. Contrary Evidence

I have just argued that if we adopt modal rationalism, we are forced to grant that there is evidence for a very large number of statements of form $\Diamond p$, including such statements as 'it is possible for Neptune to be a poached egg' and 'it is possible for Neptune to be a prime number'. While this is a surprising result, perhaps the modal rationalist can live with it. Given the current dialectical setting, they may bite the bullet and claim that many statements of form $\Diamond p$ that are generally thought to be false are in fact warranted. Moreover, they can maintain that their view does not apply to instances of $\Diamond p$ that are known to be false, such as 'it is possible that some bachelor is married'. Thus, the argument in the previous section cannot be used to show that modal rationalism warrants false statements. But even if the strategy works, the modal rationalist is in trouble. Indeed, my argument can be slightly modified in order to show that given a statement of form $\Diamond p$, if modal rationalism warrants this statement, it also warrants the negation of this statement.

Often, a version of modal rationalism will not only aim to provide evidence for statements of form $\Diamond p$. It will also aim to provide evidence for the negation of such statements. For example, many versions of modal rationalism will aim to provide evidence *against* 'it is possible for Venus to be a poached egg'. More precisely, given a statement of form $\Diamond p$, a modal rationalist may put forward a statement e' such

that if e' is true, there is evidence against $\Diamond p$. As before, what e' claims exactly will vary between versions of modal rationalism. Sometimes, e' will also claim that there is an intentional mental state involving p. Alternatively, e' may point to an inability to have a particular mental state. As before, e' may specify additional constraints, e.g. 'the subject of the mental must be in full possession of their mental faculties', 'the ability of someone unfamiliar with the meaning of p is irrelevant', etc.

With this in hand, the argument proceeds as follows. Consider some version of modal rationalism which aims not only to provide evidence for some instances of $\Diamond p$ — e.g. evidence for 'it is possible for Venus to be a moon' — but also to provide evidence against some instances of $\Diamond p$ — e.g. evidence against 'it is possible for Venus to be a poached egg'. Such a version of modal rationalism will accept at least an instance of each of the following schema:

MR. If e_p, there is evidence for $\Diamond p$.

MR′. If e'_p, there is evidence against $\Diamond p$.

where e_p is a statement claiming that there is some intentional mental state involving p (or that one is able to have this mental state), and e'_p is a statement claiming that there is some intentional mental state involving p (or that no one is able to have this mental state).

Now, consider any statement q. The following argument shows that if one adopts the version of modal rationalism under consideration, they should accept that there is both evidence for and against $\Diamond q$:

(C1) $\Diamond e_q$.

(C2) If $\Diamond e_q$, there is evidence for $\Diamond q$.

(C3) $\Diamond e'_q$.

(C4) If $\Diamond e'_q$, there is evidence against $\Diamond q$.

(C5) So, there is evidence for $\Diamond q$ and there is evidence against $\Diamond q$.

Premises (C1) and (C2) correspond to premises (A1) and (A2) above, and are thus established in exactly the same way. The argument for (C3) is parallel to the argument for (C1), i.e. it appeals to a second-

order mental state (or ability) of the relevant kind. For example, if e_p is 'it is intuitive that $\Diamond p$', (C3) can be established by maintaining 'it is intuitive that $\Diamond e_q'$'. Similarly, the argument for (C4) is parallel to the argument for (C2). Just as there is no good reason to maintain that e_p is evidence for $\Diamond p$ but deny that $\Diamond e_q$ is evidence for $\Diamond q$, there is no good reason to maintain that e_p' is evidence against $\Diamond p$ but deny that $\Diamond e_q'$ is evidence against $\Diamond q$. Thus, by Neutrality, $\Diamond e_q'$ should count as evidence against $\Diamond q$ if $\Diamond e_q$ does.

It is worth noting that (C1) and (C3) do not always need to be established in the modal rationalist fashion. In some cases, (C1) can be established not by pointing to a relevant second-order mental state involving e_q, but by showing that e_q is true and pointing out that if e_q is true, so is $\Diamond e_q$. In fact, in such a case, one need not even bother with (C1). All that one has to do is to maintain that e_q is true and replace (C2) with the (presumably much less controversial) claim that if e_q is true, there is evidence for $\Diamond q$. The same point applies regarding (C3) and (C4).

On its own, the conclusion (C5) of this argument is already bad news for the modal rationalist. It becomes even more problematic when one remembers that the evidence in question is supposed to *warrant* what it supports. Indeed, as mentioned above, we are only interested in versions of modal rationalism that aim to establish the truth (or falsity) of instances of $\Diamond p$.

26. Intuitions

In order to present a challenge to modal rationalism in general, the argument introduced in the previous section was presented in a rather abstract manner. However, to better see how the argument is supposed to work and to reveal potential pitfalls, it is worth considering an instance of this argument targeted at a particular version of modal rationalism.

Throughout my examples in the preceding sections, I have alluded to intuition-based modal rationalism, a version of modal rationalism according to which evidence for at least some instance of $\Diamond p$ is provided by an intuition that $\Diamond p$. More precisely, intuition-based modal rationalism claims that there is a set of statements P such that the following schema holds for all $p \in P$:

IMR. If there is an intuition that $\Diamond p$, then there is evidence that $\Diamond p$.

What are the members of P here? To not put undue strain on this version of modal rationalism, I will only assume that P contains statements p such that it is largely uncontroversial that (i) $\Diamond p$ is true and (ii) p is false, e.g. 'Neptune was discovered in 1847'. The first condition ensures that the view is not more objectionable than it needs to be. The second ensures it remains interesting for our discussion of the modal problem (and for modal epistemology in general).

Intuition-based modal rationalism is also a view about the evidence we have against some instances of $\Diamond p$. Under this view, there is a set of statements P' such that the following schema holds for all $p \in P'$:

IMR′. If there is an intuition that $\neg\Diamond p$, then there is evidence that $\neg\Diamond p$.

I only assume that P' contains statements p such that (i) it is largely uncontroversial that $\Diamond p$ is false, but (ii) it is not obviously deductible that it is so, e.g. 'Neptune is a poached egg'. Again, the first condition avoids making the view more controversial than it needs to be, while the second ensures it remains interesting (for if it can be deduced in an obvious way that $\Diamond p$ is false, intuitions are hardly needed).

In this context, an intuition is a particular kind of conscious episode: a seeming. It is, for instance, what occurs when, after a moment's reflection on one of De Morgan's laws, "something new happens: it now seems true; you suddenly 'just see' that it is true" (Bealer, 1996, p. 5, see also 1999, 2002). Notice that this is not supposed to be a precise or complete definition of intuition, only a clarification. A definition of intuition is not required anyway: the notion of intuition — like that of belief and perception, say — can be adequately grasped by pointing to and reflecting on paradigmatic examples.

An intuition is a seeming. But it is not any kind of seeming. More precisely, the seeming is intellectual, rather than sensory, introspective, or imaginative. In this sense, intuitions are particularly well suited to be about truths of mathematics or logic. Indeed, one can sense that the air is warm and perhaps imagine that the air is cold. But one cannot, in the same way, sense or imagine that there are infinitely many integers, although one can intuit that it is so.

Of course, to say that intuitions are not imaginative is not to say that imagination has no role to play where intuitions are concerned. Indeed, one often encounters intuitions when thinking about hypothetical cases, which typically requires the exercise of one's imagination. For instance, to get the intuition that the character in Gettier (1963) Case I does not know that the chosen candidate has ten coins in his pocket, I first have to imagine the hypothetical situation described by this case. Similarly, my intuition that Venus could be a moon becomes more salient when I imagine Venus orbiting around Jupiter.

The following important features of intuitions should be kept in mind throughout this discussion. First, an intuition is intentional, i.e. it has a propositional content. For instance, the content of the intuition that Venus could be a moon is the proposition expressed by the sentence 'I could be standing'. Second, an intuition is an occurrent mental state. This means that an intuition occurs in a particular subject at a particular time. Thus, properly speaking, we should not speak of *the* intuition that Venus could be a moon, but rather of the intuition *of some subject at some time* that Venus could be a moon. I sometimes drop this terminological specification when there is no risk of confusion. Third, intuitions are fallible: the existence of an intuition that p does not guarantee that p is true. For instance, before I read Kripke (1972) and became acquainted with the notion of rigid designators, I had the intuition that water could be different from H_2O, even though water is necessarily identical to H_2O.

At this point, the following concern may be raised: if intuitions are fallible, can IMR really help us to decide whether a given possibility is true or false? This worry is largely unwarranted. The fact that intuitions are fallible does not prove that they cannot be trusted. Indeed, if an intuition fails to accurately represent reality, there are signs indicating that it does. Typically, the subject of a failed intuition is inattentive, confused, or otherwise in an abnormal epistemic situation that explains the failure. For instance, when I had the intuition that water could be different from H_2O, I was confused about the denotation of 'water' and 'H_2O'. My confusion in part explains why I had this intuition. If one is able to recognize such signs, one may identify failing intuitions (Bealer, 2005). Moreover, in the absence of such signs, it is safe — or at least methodologically acceptable — to assume that the intuition does not fail. (For a similar point regarding conceivability, see Yablo, 1993, pp. 32–36.)

While intuition-based modal rationalism (as I have presented it) is a somewhat artificial and simplified view constructed for the sake of the example, versions of modal rationalism similar to it have been defended in practice. Indeed, intuitions are commonly thought to play an important role in *a priori* justification, akin to the role played by perceptions in *a posteriori* justification (Bealer, 1996, 1999; BonJour, 1998; Chudnoff, 2013). Because justification of what is merely possible is taken to be *a priori* justification, it is unsurprising that intuitions are thought to provide evidence for mere possibilities, just as they are supposed to provide evidence for mathematical statements.

Moreover, and perhaps more importantly, versions of modal rationalism that appeal to intuitions are often used in the philosophical literature. In particular, intuitions about possibility statements are frequently used to argue against identity claims. For instance, let us consider again the familiar argument against the identity of a clay statue and the lump of clay that constitutes it: (i) it is impossible that the statue is not the statue; (ii) it is possible that the lump of clay is not the statue; therefore, by Leibniz's Law, the statue is not the lump of clay. Here, (ii) is a statement of form $\Diamond p$ and it is often established through an appeal to intuitions.

With these preliminary remarks in mind, let us show that for most (perhaps all) values of q, intuition-based modal rationalism supports both $\Diamond q$ and $\neg\Diamond q$. Let us consider first a value of q such that it is counterintuitive that $\Diamond q$. For example, let q be 'Neptune is a poached egg'. Since $\Diamond q$ is counterintuitive, there is an intuition that $\neg\Diamond q$. And so, by applying IMR′, we find that there is evidence against $\Diamond q$. But according to the following argument, there is also evidence for $\Diamond q$.

(D1) It is possible for there to be an intuition that $\Diamond q$.

(D2) If it is possible for there to be an intuition that $\Diamond q$, there is evidence for $\Diamond q$.

(D3) So, there is evidence for $\Diamond q$.

Therefore, there is both evidence for and evidence against $\Diamond q$.

Notice that in this case, the conclusion that there is evidence against $\Diamond q$ is obtained straightforwardly and should thus be uncontroversial for the proponent of intuition-based modal rationalism. By contrast, the problematic claim here in this argument will be the conclusion (D3). This is because we have chosen

a value of q so that $\Diamond q$ is counterintuitive. If we instead choose the value of q to be such that $\neg\Diamond q$ is counterintuitive — e.g. if we let q be 'Neptune was discovered in 1847' — showing that there is evidence for $\Diamond q$ is trivial under intuition-based modal rationalism. The claim that there is evidence *against* $\Diamond q$ is then established by an argument parallel to (D1)–(D3):

(D4) It is possible for there to be an intuition that $\neg\Diamond q$.

(D5) If it is possible for there to be an intuition that $\neg\Diamond q$, there is evidence against $\Diamond q$.

(D6) So, there is evidence against $\Diamond q$.

The premise (D1) — or, as it may be, (D4) — is established by appealing to IMR. When I reflect on the notion of intuition introduced above, it seems to me that it is possible for there to be an intuition that $\Diamond q$. This seeming is strongest when I imagine a counterfactual situation in which I (or someone closely resembling me) intuit that $\Diamond q$, e.g. when I imagine that my brain was somehow hardwired to modify my intuitions, or when I imagine that I was brought up in a society of radical contingentarianists according to which it is possible for something to have almost completely different properties from the ones it has.

In anticipation of a potential concern, I wish to stress that, in the imagined situations, my environment is much the same as it actually is. In particular, Neptune is the same thing as it actually is, namely a planet. Moreover, I am speaking ordinary English and not an analogous language: I am not using a language in which 'poached egg' means 'planet'. Nor am I confusing the concept of poached eggs with the concept of planets. In short, in the imagined situations, my intuition that Neptune could be a poached egg is simply erroneous — exactly as was my former intuition that water could be different from H_2O. In that sense, the imagined situations are not twin-Earth cases *à la* Putnam (1975) and Burge (1979).

So, intuitively, it is possible for there to be an intuition that $\Diamond q$. Applying IMR, we get that there is evidence that it is possible for there to be an intuition that $\Diamond q$, i.e. evidence for (D1). But is the application of IMR legitimate here? I claim that it is. There is no good reason to maintain that an intuition that (say) Neptune could have been discovered in 1847 is evidence that Neptune could have been discovered in 1847, but deny that an intuition that I could intuit that $\Diamond q$ is not evidence that I could

intuit that $\Diamond q$. Intuitions about my merely possible intuitions are no more problematic than intuitions about the merely possible properties of Neptune. Thus, under intuition-based modal rationalism, there is evidence for (D1). And as we saw above, the evidence here is supposed to warrant what it supports. This concludes our discussion of the first premise.

(Note that it does not appear to matter whether we are dealing with a version of modal rationalism more sophisticated than IMR, one that puts further constraints on intuitions. For example, suppose that we are working with a version of modal rationalism according to which evidence for $\Diamond p$ is provided not just by any intuition that $\Diamond p$, but by an intuition that $\Diamond p$ whose subject is clear-headed and has full command of the concepts involved in $\Diamond p$. Here, (i) I have the intuition that there could be an intuition that $\Diamond q$ satisfying the relevant constraints, and (ii) my own intuition satisfies the relevant constraints. As before, this intuition occurs when I imagine that someone tampered with my brain or when I imagine that I received a fatalist education. So, under this more sophisticated version of modal rationalist, we also get that there is a possible intuition that $\Diamond q$ satisfying the relevant constraints.)

What about (D2)? According to this premise, if it is possible for there to be an intuition that $\Diamond q$, then there is evidence for $\Diamond q$. I argue that because of Neutrality, someone maintaining IMR has no choice but to accept (D2) as well. The argument proceeds in two steps.

The first step says that there is no good reason to maintain that q is not a member of the set P of statements relevant to IMR. That is, there is no good reason to maintain (say)

(1) If there is an intuition that Neptune could have been discovered in 1847, there is evidence for 'Neptune could have been discovered in 1847',

but to deny

(2) If there is an intuition that $\Diamond q$, there is evidence for $\Diamond q$.

So, by Neutrality, (2) holds if (1) does.

The second step says that there is no good reason to maintain an instance of IMR but to deny the corresponding instance of

P-IMR. If it is possible for there to be an intuition that $\Diamond p$, there is evidence that $\Diamond p$.

In particular, there is no good reason to maintain (2) but to deny (D2). So, by Neutrality, (D2) holds if (2) does. Therefore, by transitivity of the material conditional, if (1) is true, so is (D2). But (1) is a paradigmatic instance of IMR, i.e. one that the proponent of intuition-based modal rationalism will accept. So, the proponent of intuition-based modal rationalism must accept (D2).

While the first step of this argument is largely unproblematic, the second step is bound to be controversial. Surely, there must be a good reason to prefer actual intuitions over merely possible ones, and so to accept (2), but not (D2). But as we saw above, it is not so easy to come up with a compelling reason. In particular, claiming that the merely possible intuition is not real (actual, existent, concrete, etc.) will not do here. Yet there may still be another, better, reason to choose IMR over P-IMR. In the next section, I consider and reject two suggestions to this effect.

27. Possible Evidence

Here is a reason to maintain IMR but not P-IMR. In general, when the schema

(1) If e_p, there is evidence for p

holds for some values of p, the schema

(2) If $\Diamond e_p$, there is evidence for p

does not hold for all the same values of p. For example, consider the following schemata:

(3) If I see that p, there is evidence for p.

(4) If it is possible for me to see that p, there is evidence for p.

(Note that here, I am not assuming that seeing is factive, i.e. I do not assume that 'I see that p' entails that p is the case. Thus, there is no asymmetry between seeings and intuitions in this respect. If this helps, you may replace 'see' with 'have a visual impression', 'have a perceptual experience' or 'have a sensory seeming', since it is less tempting to take the latter expressions as indicating factivity.)

Schema (3), let us assume, holds when the value of p is 'Venus is sphere-shaped'. But then, we must also accept that the schema holds when p is, say, 'Neptune is cube-shaped'. Indeed, there is no good

reason to maintain that the schema holds in the former case but not in the latter. So, by Neutrality, we must maintain that it holds in both cases. Therefore, (3) holds when p is 'Neptune is cube-shaped'.

So far, so good. But now, notice that schema (4) does not hold when the value of p is 'Neptune is cube-shaped'. Unless we are already assuming necessitarianism (in which case, there would be little sense in arguing against modal rationalism anyway), we should agree that it is possible for me to see that Neptune is cube-shaped. This is because we should agree that it is possible for Neptune to be cube-shaped and for my perceptual system to work exactly as it actually does, so that if I look through the lens of a telescope toward a cube-shaped planet, I will see that this planet is cube-shaped. But we can safely that there is no evidence that Neptune is cube-shaped. Therefore, when p is 'Neptune is cube-shaped', the antecedent of (4) holds (at least, it does in a contingentarianist framework), but its consequent does not. Thus, when p is 'Neptune is cube-shaped', (4) does not hold. So, there are at least some values of p for which (3) holds, but (4) does not.

But this spells trouble for the objector to modal rationalism. For if it is typical that (1) holds and (2) does not, why should we make an exception for the case of IMR and P-IMR? In particular, if a merely possible perception that p is not evidence that p, why should a merely possible intuition that $\Diamond p$ be evidence that $\Diamond p$? If discrimination between the actual and the nonactual is acceptable with respect to perceptions, then, surely, such discrimination will be acceptable with respect to intuitions as well.

I reject this diagnostic. Although the proponent of IMR has no good reason to reject P-IMR the proponent of (3) has an excellent reason to reject (4). There is a crucial asymmetry between my actual perception that p and my merely possible perception that p. The former, but not the latter, occurs at a world at which the content of my perception mirrors reality: a world such that if p is true at that world, p is true.

When I actually see that Venus is sphere-shaped, I see Venus how it actually is. That is, in this case, I know that my perception that Venus is sphere-shaped is at a world such that if Venus is *F* at that world, Venus is *F*. By contrast, in the case of my merely possible perception that Neptune is cube-shaped, I do not see Neptune how it actually is, but how it could be. Remember, the reason we allow that it is possible for me to see that Neptune is cube-shaped is because we want to allow that it is possible for Neptune to

be cube-shaped while my perceptual system is exactly how it actually is. This means that the world of my merely possible perception is not such that if Neptune is *F* at that world, Neptune is *F*.

But according to schema (4), my possible perception (whether actual or merely possible) that p is supposed to be evidence for the claim that p is true, not just evidence for the claim that p is true at some world. Thus, the only worlds of interest here are those where the content of my perception that p mirrors reality, i.e. the worlds such that if p is true at that world, p is true. Since the world at which my merely possible perception occurs is not one of these worlds, it is irrelevant. And thus, so is my merely possible perception. This is precisely why it is acceptable to reject (4) while keeping (3).

The proponent of IMR — more generally, the friend of modal rationalism — can rely on no such asymmetry. When it comes to finding evidence for what is possible, the worlds that mirror reality enjoy no special status. According to P-IMR, my possible intuition (whether actual or merely possible) that Neptune could be a poached egg is not supposed to be evidence for the claim that Neptune is a poached egg, but for the claim that it is possible for Neptune to be a poached egg. More generally, my intuition that $\Diamond p$ is not supposed to be evidence for the claim that p is true, but only for the claim that p is possible. Thus, it is completely irrelevant to our purposes whether an intuition occurs at a world that mirrors reality.

This discussion also allows us to understand why it seems so natural to choose IMR over P-IMR. More generally: why modal rationalists tend to favour the schema 'if m_p, there is evidence that $\Diamond p$', over the schema 'if $\Diamond m_p$, there is evidence that $\Diamond p$'. Intuition-based modal rationalism — like many other versions of modal rationalism — is often introduced by analogy to a perceptual theory. The intuitive seeming is, at least conceptually, similar to a sensory seeming. I 'see' through my intuitive sense that Neptune could have been discovered in 1847, as I see through my eyes that Neptune is sphere-shaped. Although convenient, this analogy is not without its dangers. As just discussed, a perceptual theory — like any evidential theory interested only in actual facts — should simply ignore nonactual perceptions, even if it accepts that such perceptions exist. This policy is so obviously right and so common that it is rarely stated explicitly. Thus, unsurprisingly, it makes its way into modal rationalism. But while the

policy is unproblematic for statements about what is actual, it is simply methodologically inappropriate to apply it to statements about what is possible.

Here is another reason one may have to maintain IMR while rejecting P-IMR: while my actual intuition that Neptune could have been discovered in 1847 has perfectly normal causes, my merely possible intuition that Neptune could have been a poached egg is caused in some way that makes it unreliable. It is easy to see the appeal of this idea. Indeed, as we saw in the previous section, my intuition that it is possible for there to be an intuition that Neptune could have been a poached egg is strongest when I imagine a case in which I have this intuition. But, in all such imagined cases, there is a peculiar and unexpected cause to my intuition: my brain is hardwired in a strange way, my education as a radical contingentarianist is skewing my beliefs, etc.

However, when some mental state is caused in such a peculiar way, it often turns out to be unreliable evidence. For instance, recall the simple perceptual theory introduced at the beginning of this section. My perception that Venus is sphere-shaped will be more reliable if it is caused by Venus (or the fact that Venus is sphere-shaped) rather than by a mad scientist tampering with my brain. Or consider a moral rationalist view according to which moral intuitions support some sentences about which actions are actually right or wrong. Such a view will typically be supplemented with a means of avoiding intuitions caused by brainwashing rather than by carefully considering the action and its consequences.

At this juncture, it seems that the proponent of intuition-based modal rationalism may adopt a similar strategy to discard the nonactual intuition that $\Diamond p$. Because the nonactual intuition that $\Diamond p$ is caused in a deviant way, whereas the actual intuition that $\Diamond p$ is not, there is a good reason to choose the latter intuition over the former. This reason is akin to the reason one has for choosing my friend's sober perception that there is a dog on the street rather than my own drunken perception that there is a cat on the street.

Unfortunately for the modal rationalist, this move fails. The perceptual theorist has good reason to discard my drunken perception that there is a cat on the street. The reason is that drunken perceptions are typically caused not by what they represent (here, the fact that there is a cat), but rather by other factors: the alcohol molecules in my organism, the fact that there is a dog in my surroundings, etc.

But the proponent of IMR can rely on no such asymmetry. Neither my actual intuition that Neptune could have been discovered in 1847, nor my merely possible intuition that Neptune could have been a poached egg are caused by what they represent. Therefore, the modal rationalist cannot justifiably maintain that one of the intuitions is the product of a deviant causal chain while the other is not. Because my actual intuition is not caused by the merely possible fact that Neptune was discovered in 1847, it must have some other cause, such as the structure of my brain, or my cultural and linguistic background. The same is true of my merely possible intuition that Neptune could have been a poached egg. But then, there is no reason to think that the merely possible wiring of my brain is any stranger than its actual wiring. Nor is there any reason to maintain that my merely possible radical contingentarianist education is any more suspicious than my actual education. If these merely possible causes appear to us any more problematic than the actual ones, it is only a consequence of the fact that we tend to systematically favour actual intuitions over merely possible ones when it comes to providing evidence for what is possible.

28. Conceivability

Intuition-based modal rationalism is not the only or even the most popular view in the modal rationalist family. In this section, I discussed a somewhat more elaborated view in this family: conceivability-based modal rationalism. I show that this view faces exactly the same problems as intuition-based modal rationalism.

As its name suggests, conceivability-based modal rationalism maintains that evidence for the fact that p is possible is provided by the fact that it is conceivable that p. More precisely, there is a set of statements P such that the following schema holds for all $p \in P$:

CMR. If it is conceivable that p, then there is evidence that $\Diamond p$.

Similarly, evidence for impossibility — evidence against instances of $\Diamond p$ — is provided by the fact that it is inconceivable that p. That is, there is a set of statements P' such that the following holds for all $p \in P'$:

CMR′. If it is inconceivable that p, then there is evidence that $\neg\Diamond p$.

Following Yablo (1993, p. 29), someone conceives that p if they imagine a world that they take to verify p. Thus, if I am able to imagine a world that I take to verify p, it is conceivable (for me) that p. Similarly, if I am unable to imagine a world that I do not take to falsify p, it is inconceivable (for me) that p. These characterizations call for some comments.

First, in this context, 'world' has a different (although related) meaning than the one previously introduced (§13). Here, a world is roughly a maximally consistent plurality of situations or facts. So, under this account, a world is not an index w. Rather, a world is akin to what is indexed by w, i.e. to the function f_w from the set of properties to the set of things.

Second, the relevant imagination here is objectual, rather than propositional. That is, when I conceive that Venus is a moon, I am not (or at least not merely) imagining *that* Venus is a moon. Rather, I am imagining *something*, namely a world in which Venus is a moon.

Third, it is important to note that objectual imagination may leave its object largely unspecified. That is, one may imagine something without having to specify all or even most of that thing's properties. When I imagine a planet, I do not picture a planet of a specific size (which is not to say that I picture a planet of indeterminate size). What goes for planets goes, too, for worlds. When a conceiving that Venus is a moon occurs, a great many features of the imagined world are left unspecified.

Fourth, imagining a world is not sufficient to conceive that world. The imaginer must, in addition, take the world to verify the propositional content of the conceiving. In other words, the imagined world must be one of which p is a true description according to the imaginer. This, in turn, requires that the aspects of the world that are relevant to p are not left unspecified. For instance, an imagined world that leaves the size of Venus unspecified is perhaps suited for conceiving that Venus is a moon, but it is not suited for conceiving that Venus is larger than Jupiter.

The following argument demonstrates that conceivability-based modal rationalism typically warrants both an instance of $\Diamond q$ and its negation. Let us consider a value of q such that it is conceivable that q, e.g. 'Neptune was discovered in 1847'. Since it is conceivable that q, then, by CMR, we have evidence that $\Diamond q$. But we also have evidence against $\Diamond q$. Indeed:

(E1) It is possible that it is inconceivable that q.

(E2) If it is possible that it is inconceivable that q, there is evidence against $\Diamond q$.

(E3) So, there is evidence against $\Diamond q$.

This argument is no more (or less) problematic than the argument against intuition-based modal rationalism. Here, the premise (E1) is established through an appeal to CMR. I am able to imagine a world that I take to verify 'it is inconceivable that Neptune was discovered in 1847'. For example, I am able to imagine a world in which my brain (as perhaps everyone else's) has been tampered with to remove my ability to imagine a world that I take to falsify 'Neptune was discovered in 1847'. Or I can imagine a world in which I believe (wrongly) that Neptune was discovered in 1847 and in which my actual contingentarianist beliefs have been skewed by a fatalist education, so that, in this world, I am unable to imagine a world that I take to falsify 'Neptune was discovered in 1847'. Thus, it is conceivable that it is inconceivable that q. So, by CMR, there is evidence that it is possible that it is inconceivable that q, i.e. evidence for (E1). And, once again, this evidence is supposed to warrant the claim that (E1). Therefore, we can treat (E1) as true, exactly as we treated (D1) as true.

Premise (E2) is controversial, but no more than (D2) is. Assuming Neutrality, the fate of (E2) will be decided by whether there is a good reason to maintain CMR′ but reject

P-CMR′. If it is possible that it is inconceivable that p, then there is evidence that $\neg\Diamond p$,

when the value of p is such statement as 'Neptune was discovered in 1847'. But here the discussion appears to collapse into our discussion of IMR/P-IMR. Switching from intuitions to conceivability does not affect much regarding this discussion.

Above, we considered a value of q such that it is conceivable that q. Let us now consider a case where it is inconceivable that q, e.g. a case where q is 'there are cube-shaped spheres orbiting the Sun'. In this case, it immediately follows from CMR′ that there is evidence against $\Diamond q$. That there is evidence for $\Diamond q$ is argued as follows:

(E4) It is possible that it is conceivable that q.

(E5) If it is possible that it is conceivable that q, there is evidence for $\Diamond q$.

(E6) So, there is evidence for $\Diamond q$.

I am somewhat less confident in (E4) than I am in (E1). I am able to imagine a situation in which a mad scientist plays with my brain and affects my imaginative abilities. However, it is not clear to me that in this imagined situation, I would really be able to imagine a world verifying 'there are cube-shaped spheres'. Perhaps the fact that I am less confident in (E4) is a sign that we should not accept this statement.

The proponent of conceivability-based modal rationalism can thus block the argument (E4)–(E6), and maintain that their view warrants that $\neg\Diamond q$ when q is 'there are cube-shaped spheres orbiting the Sun'. Point granted. But this is clearly not much of a victory for the modal rationalist. Indeed, we hardly need modal rationalism to confidently conclude that there could not have been a cube-shaped sphere. Nor is it a victory for the contingentarianist: the evidence here is provided *against* a statement of form $\Diamond p$, while the contingentarianist needs evidence *for* a statement of this form.

29. Counterfactual Imagination

While the argument developed in this section is primarily aimed at modal rationalist accounts, it can also be applied to views in modal epistemology that are not classified as rationalists. In this section, I show how my argument can be applied to a view in modal epistemology according to which knowledge of possibilities is a special case of knowledge of counterfactuals (Williamson, 2005, 2007a, 2007b, Chapter 5; see also Hill, 2006; Kroedel, 2012).

The view in question can be roughly summarized as follows: we come to know that $\Diamond p$ when, using counterfactual imagination to simulate what would happen were p to be true, no contradiction results from this simulation. This view is built on two main theses, which I briefly introduce in what follows.

The first thesis is an analysis of possibilities in terms of counterfactuals (D. K. Lewis, 1973b, p. 441; Stalnaker, 1968, p. 105). Let '$p > \perp$' abbreviate 'if it were the case that p, a contradiction would follow'. Then, the analysis in question tells us that

$\Diamond p$ iff $\neg(p > \perp)$.

In other words, p is possible iff it does not counterfactually imply a contradiction. Thus, according to this analysis 'Venus could be a moon' is equivalent to 'it is not the case that if Venus was a moon, a contradiction would follow'. This analysis straightforwardly expands to an analysis of impossibilities:

$\neg\Diamond p$ iff $p > \bot$.

Put another way, that which counterfactually implies a contradiction is impossible. Thus, according to this analysis 'it is impossible for a sphere to be cube-shaped' is equivalent to 'if a sphere was cube-shaped, a contradiction would follow'.

The second thesis behind the view under consideration is an epistemology of counterfactuals. We can come to know that the counterfactual $p > q$ is true by simulating what would happen if p was the case. We can simulate this by using our imagination, constrained by relevant background knowledge. For instance, consider the following counterfactual:

(1) If my mug was thrown at the wall, it would break.

To evaluate this counterfactual, I form in my mind an image of the antecedent: the mug being thrown at the wall. I then imagine what would happen next: the mug hits the wall and breaks into several pieces. From this, I conclude that (1) is true.

Naturally, the same process allows us to know which counterfactuals are false. For example, when I simulate what would happen if my mug was thrown at the wall, the simulation does not end up with the mug melting. And so, I conclude that

(2) If my mug was thrown at the wall, it would melt

is false.

It is important to note that the imaginative exercise used to evaluate a counterfactual must be constrained. Just as I am able to imagine the mug hitting the wall and breaking into pieces, I am also able to imagine the mug being stopped mid-air by a magical force field. However, I do not conclude, from this latter imagining, that (1) is false. In fact, this imagining is irrelevant to evaluating the counterfactual. The reason is thus: to act as a reliable simulation, the imagined situation must present a minimal deviation from what is the case. This is not to say that the imagined situation must be close to

what is the case. Some counterfactuals are such that they require an important departure from the actual situation. But to be relevant, my imagining must be constrained by my knowledge of the actual situation, for instance, by my knowledge of the properties of porcelain.

This point has two consequences worth keeping in mind. First, because our knowledge of the actual situation may be imperfect, evaluating counterfactuals through imagination is fallible. If I ignore the fact that my mug is made from a new, ultra-shatter-resistant kind of porcelain, I may be led to conclude (1), even though it is in fact false. Second, given that knowledge of the actual situation is required for a proper simulation, it may be difficult or even impossible to evaluate a counterfactual whose antecedent presupposes a significant departure from the actual situation.

What holds in the general case of $p > q$ also holds in the special of $p >\!\!\perp$. When I simulate (by an appropriately constrained exercise of my imagination) a situation in which I am standing rather than sitting, no contradiction arises. And so, given the above analysis of possibility, I conclude that

(3) It is possible for me to be standing.

The view just introduced faces a similar issue to the one raised above about modal rationalism. To begin, note that while the view was introduced as an account of the *knowledge* of counterfactuals, it is easy to turn it into an account of the *evidence* we have for or against counterfactuals. Indeed, under this view, it is natural to take the result of the counterfactual development of p as supporting either $p > q$ or the negation of $p > q$. For example, the fact that a simulation of my mug being thrown at the wall ends up with the mug in pieces is evidence for (1). Similarly, the fact that a simulation of my mug being thrown at the wall does not end up with the mug melting is evidence against (2). Or again: the fact that no contradiction arises when I properly simulate a situation in which I am standing (rather than sitting) is evidence for (3). Note that, contrary to what is the case for modal rationalism, the evidence here is not a fact about the occurrence of a mental state. What matters here is not the imaginative exercise used to run the simulation, but the result of this simulation, i.e. the content of the imaginative exercise.

Generalizing from this last example, we get:

CI. If a counterfactual development of p yields no contradiction, there is evidence for $\Diamond p$.

And similarly for the negative case:

CI′. If a counterfactual development of p yields a contradiction, there is evidence against $\Diamond p$.

Now, consider a false statement q such that a proper counterfactual development of q yields no contradiction. Given CI, there is evidence for $\Diamond q$. But assuming Neutrality and CI′, one can also argue that there is evidence against $\Diamond q$:

(F1) It is possible that a counterfactual development of q yields a contradiction.

(F2) If it is possible that a counterfactual development of q yields a contradiction, then there is evidence against $\Diamond q$.

(F3) So, there is evidence against $\Diamond q$.

Is this argument more objectionable than those previously introduced in this chapter? It does not appear to be so.

The second premise (F2) depends on whether there is a good reason to maintain CI′ while rejecting

P-CI′. If it is possible that a counterfactual development of p yields a contradiction, there is evidence against $\Diamond p$.

Again, the discussion of this principle can be collapsed into our above discussion of P-MR

As it is for the arguments against the intuition-based and conceivability-based versions of modal rationalism, the first premise (F1) is established by an appeal to the view in question. We saw above that imagination can be used to simulate a variety of counterfactual situations. For example, it can be used to simulate a situation in which my mug is thrown at the wall. Similarly, imagination can be used to simulate a situation in which a counterfactual development of q yields a contradiction.

More precisely, I suppose a counterfactual situation in which I simulate what would happen if q was true and in which my simulation results in a contradiction. Exercising my imagination (constrained by my background knowledge), I develop this counterfactual situation, which yields various results. For example, I find that in that case, it would seem to me that q is impossible, that I would assert that q is impossible, that I would expect that others agree with me that q is impossible, etc. But the development

does not yield a contradiction. Assuming that CI can be applied in this case as well, we can conclude (F1).

In this chapter, I have argued that under modal rationalism, we have evidence for many more statements of form $\Diamond p$ than we normally think. Moreover, for related reasons, many versions of modal rationalism tend to warrant both an instance of $\Diamond p$ and the negation of this instance. My argument here crucially relies on the claim that if an actual mental state satisfying the relevant conditions is evidence for $\Diamond p$, a merely possible mental state satisfying these conditions is also evidence for $\Diamond p$. As I have discussed, this claim is less controversial than it may seem at first glance. Merely possible things are often pieces of evidence for what is merely possible.

VI. Bridge Views and Kinds of Possibility

A bridge view is a view according to which evidence for mere possibility results from two elements: (i) a truth about some modal-related features of something, e.g. about its essence, or about its dispositions; (ii) a bridge principle allowing us to infer from this truth that the thing in question could have been otherwise, that it could have had different properties than the one it has. In this chapter, I attack the bridge principle put forward by these views. The fact that something has some particular modal features (that it is able to do something, that such and such properties are essential to it, etc.) does not allow us to conclude that things could have been otherwise, at least not if 'could' is used in the sense relevant to the modal question. If bridge views lead us to mere possibilities at all, they do not lead us to the right kind of mere possibilities.

I begin this chapter by briefly exposing the general structure of bridge views (§30). I discuss kinds of possibility (§31), and say more about the kind of possibility relevant to the modal problem (§32). I then discuss two particular bridge views, focused on two different types of modal features, respectively essence (§33) and potentialities (§34). Finally, I discuss the induction-based view introduced in Roca-Royes (2017), which has some similarities with bridge views (§35).

30. Bridge Views

According to the modal rationalist accounts introduced in the previous chapter, statements of mere possibilities are supported in a rather direct manner. The occurrence of the relevant mental state, assuming it satisfies the relevant constraints, is enough to provide evidence for the possibility in question. However, some views within modal epistemology adopt a more indirect approach. While these views differ widely from each other, they all share the same general structure.

Under such a view, our knowledge of what is merely possible is explained by two main components. On the one hand, the view tells us how we gain knowledge about modalish facts: facts somehow related

to modality, to what is possible and necessary. For example, the view may tell us how we know that we have a certain ability, or how we know that a given property is essential to a given individual. On the other hand, the view tells us how knowledge of these modalish facts leads to knowledge of what is merely possible. Central to this second part of the explanation is a bridge principle linking the modalish facts at play to mere possibilities. Roughly, this principle takes the form of a conditional claiming that a given statement is possible if the relevant modalish fact obtains. In summary, using the terminology of Vaidya & Wallner (2021): the first part of the explanation tells us how we gain *access* to the modal realm, while the second part shows how we can *navigate* from there to mere possibilities. Let us use 'bridge view' as a generic term for views that explain our knowledge of possibility by the sort of two-stage explanation just mentioned.

In what follows, I will be mainly focused on the second component of bridge views. I have no particular qualms with how these views account for our knowledge of the relevant modalish facts. I find their account in this regard largely compelling. Rather, my issue is with the principle linking the relevant modalish facts to mere possibilities. I will argue that this principle is either wholly unsupported, or that it leads to a kind of possibility other than the one we are interested in when we ask the modal question 'what could have been otherwise?'.

It should be noted that contrary to the modal rationalist views discussed in the previous chapter, the views I will discuss here do not explicitly attempt to provide *evidence* for possibilities. Rather, their goal is to explain our *knowledge* of what is merely possible. Thus, these views typically start from the assumption that for at least some things, we know that they could have had different properties than those they actually have. That is, they start from the assumption that we know that some c-statements are true. And since one does not know that p unless p is true, these views are based on the underlying presupposition that some c-statements are true, i.e. they are built on a contingentarianist assumption.

The point is important. There is little doubt that the bridge principles put forward by these views hold *if contingentarianism is true*. But because our goal is to determine which (if any) c-statements are true, what must be shown is that the principle holds, even if we do not assume the truth of any c-statement. And this proves to be much more challenging. So, in what follows, we should really pretend that bridge

views do not attempt to explain our knowledge of mere possibilities, but rather aim to provide evidence for mere possibilities. Such pretence is not too far-fetched: bridge views that do not assume contingentarianism can be developed, at least in principle.

Modal rationalism and bridge views are not mutually exclusive stances. On the one hand, some modal rationalist accounts are also bridge views. There is clearly a sense in which conceivability (say) gives us access to the modal realm: if I am able to conceive that p, then I know that p is compatible with my imagination, with how my mind represents things. The question, then, is how we pass from this to the kind of possibility at play in the modal question. On the other hand, some bridge views are rationalist: according to them, the modal realm is accessed primarily on the basis of some mental state or faculty.

Below, I will argue that some bridge views do not lead us to the right kind of possibility. However, before this, I need to clarify what I mean when I talk about kinds of possibility, and what I mean by the right kind of possibility. These points are addressed in the following two sections.

31. Kinds of Possibility

As before, let $\mathcal{F}$ denote the set of all functions $R \to \mathcal{P}(U)$ mapping properties to sets of things. We saw (§13) that a subset $\mathcal{F}_W$ of those functions — the set of functions indexed by the worlds — represents what is possible when it comes to the properties of individuals. For example, if it is possible for Venus to be a moon, then there is at least one member of $\mathcal{F}_W$ that maps the property *being a moon* to a set containing Venus. More generally, given a statement p attributing a property r to an individual a,

$\Diamond p$ iff for some $f_w \in \mathcal{F}_W$, $a \in f_w(r)$.

The members of $\mathcal{F}_W$ are supposed to represent the kind of possibility at play in the modal question (§4). But notice that given this framework, it is straightforward to accommodate other kinds of possibilities. For example, suppose we want to account for nomic possibility, understood as compatibility with the laws of nature. In this case, we only have to maintain that some member of $\mathcal{F}$ represents what is nomically possible. That is, we maintain that there is a subset $\mathcal{F}_N$ of $\mathcal{F}$ such that

it is nomically possible that p iff for some $f_n \in \mathcal{F}_N$, $a \in f_n(r)$.

And just as we can define a set of indices for the members of $\mathcal{F}_W$, we can define a set of indices for the members of $\mathcal{F}_N$, namely the set of nomically possible worlds.

This strategy can be applied more generally to account for any kind of possibility we would like to introduce. The idea is that for any kind K of possibility that one would like to express, there is a subset of $\mathcal{F}$ that represents what is K-possible when it comes to properties of individuals. We can put the point more carefully. Let $\Diamond_K$ be an operator for possibility of kind K. For example, if K is nomic possibility, $\Diamond_K$ may stand for 'it is nomically possible that', 'it is not ruled out by the laws of nature that', 'given the laws of nature, it could be that', etc. Then, we say that there is a subset $\mathcal{F}_K$ of $\mathcal{F}$ such that

$\Diamond_K\, p$ is true iff for some $f_k \in \mathcal{F}_K,\ a \in f_k(r)$.

This proposal only works for the case where p is a statement attributing a property to an individual. Yet, it can be easily expanded to account for any r-statement, including non-atomic r-statements. In what follows, I mainly stick to the simplified version of the proposal. By doing so, nothing of importance for our purpose is lost, but much clarity is gained.

According to this proposal, every kind of possibility corresponds to exactly one set $\mathcal{F}_K$. Thus, a particular kind of possibility can be entirely characterized by defining this set. Conversely, a complete definition of a particular kind of possibility will yield a subset of $\mathcal{F}$. To see how this works, suppose we are interested in nomic possibility, understood as consistency with the laws of nature. Then, the idea is that the set $\mathcal{F}_N \subseteq \mathcal{F}$ representing what is nomically possible only contains functions which correspond to what is the case where the laws of nature are concerned. That is, $\mathcal{F}_N$ contains all and only those functions that 'make true' the propositions consistent with laws of nature. For example, suppose that we know it to be a law of nature that everything having the property r_1 also has the property r_2. Then, $\mathcal{F}_N$ only contains functions that correspond to this fact, i.e. only contains functions f_n such that $f_n(r_1) \subseteq f_n(r_2)$. Thus, it is nomically impossible that something has r_1 but not r_2. Assuming that we can repeat this process for every law of nature, we will have completely defined $\mathcal{F}_N$, i.e. we will have defined what is nomically possible.

Notice that this account supposes that the laws of nature are themselves nomic necessities. (At least, this is the case for those laws of nature that can be expressed by an r-statement. If a law cannot be rendered as an r-statement, my account is mute about it. The above notion of nomic necessity only applies when p is an r-statement.) Since nomic possibility is here understood as consistency with the laws of nature, this supposition is clearly adequate. For if a law l is not nomically necessary, then its negation is nomically possible. But the negation of l is clearly not consistent with a set containing l, and thus not consistent with the laws of nature. However, this account does not presuppose that the laws are necessary according to some other kind of possibility. In particular, this account leaves it open that the laws are not necessary, in the sense of 'necessary' relevant to the modal question.

To give another example, suppose that we are interested in conceptual possibility, understood as compatibility with our concepts. Then, the set $\mathcal{F}_C \subseteq \mathcal{F}$ representing conceptual possibility contains only those functions from properties to sets of things that respect the constraints fixed by our concepts. For instance, since it is constrained by our concept of vixen that a vixen is also a fox, $\mathcal{F}_C$ excludes those functions f_c such that f_c(*being a vixen*) is not a subset of f_c(*being a fox*). By contrast, since it is not part of our concepts that any vixen is red, F_C contains functions where f_c(*being a vixen*) is not a subset of f_c(*being red*). So, we get the desired result that it is not conceptually possible for something to be a vixen and not a fox, although it is conceptually possible for something to be a vixen and not red.

The proposal is neutral regarding what kinds of possibility there are. In particular, it does not say if there is only a handful of familiar kinds of possibility — logical, conceptual, metaphysical, nomic, etc. — or if there are many more kinds of possibility than this. In addition, the proposal takes no stance about how these kinds of possibility relate to each other. Thus, for example, it does not require (nor, of course, exclude) that every nomic possibility is also a conceptual possibility, or that metaphysical possibility is the most encompassing kind of possibility. Moreover, the proposal says nothing about what constitutes the right way to define a kind of possibility from another (Fine, 2002; Kratzer, 1977).

(*Digression*. While the proposal itself is neutral regarding what kinds of possibility there are, I am personally tempted by the view that there are a great many kinds of possibility, one for every subset of $\mathcal{F}$. Indeed, I do not think that there is among $\mathcal{F}$ the same kind of internal structure that there is among,

say, the sets of animals, or the set of atoms. Some subdivisions of the sets of atoms appear more natural or fundamental than others. It does not seem to me that there is the same sort of natural subdivision in $\mathcal{F}$ — except perhaps between the set whose sole member is the function f representing what is the case and all the other members of $\mathcal{F}$. Of course, this is not to say that there are no such kinds as those formed by conceptual, metaphysical or nomic possibility. Rather, the point is that there is nothing special about those kinds, apart from our interest in them.

One may object to this view along the following lines. If there is a kind of possibility corresponding to every subset of $\mathcal{F}$, then, even some clearly impossible statement would still be classified as possible under some kind of possibility. For example, since $\mathcal{F}$ is the set of all functions $R \to \mathcal{P}(U)$, there is a function $f_k \in \mathcal{F}$ such that $f_k(\textit{being round}) \cap f_k(\textit{being square}) \neq \emptyset$. Thus, if there is a kind of possibility corresponding to every subset of $\mathcal{F}$, there is a kind K of possibility corresponding to a set containing f_k. Thus, it is K-possible that something is both round and square. My answer here is to bite the bullet. There *is* a sense of 'possible' under which it is possible that something is both round and square: contrary to 'a is round and not round', 'a is round and square' is not a logical contradiction.

In any case, we need not pursue this matter further. It is not important for our purposes whether there is a kind of possibility for every subset of $\mathcal{F}$ or only a few select kinds of possibility. The important point is that every kind of possibility — including the kind we are interested in when we ask the modal question — will correspond to exactly one subset of $\mathcal{F}$. *End of digression*.)

32. Metaphysical Possibility

Remember (§4) that the modal question 'what could have been otherwise?' is concerned with a particular kind of possibility, one that we can loosely be characterized as compatibility with the essence of things. When we ask whether Venus could have been a moon, we ask whether it is compatible with the nature of things that Venus has the property *being a moon*. Similarly, when we ask whether Venus could have failed to exist, we ask whether it is compatible with the nature of things that Venus is not.

As the reader may have noticed, this characterization is reminiscent of the neo-Aristotelian essentialist construal of metaphysical possibility. According to this view, facts about metaphysical necessity obtain

in virtue of facts about essences. Socrates is necessarily human in virtue of Socrates being essentially human. Socrates is necessarily a member of { Socrates } in virtue of this set essentially containing Socrates. More generally,

(1) A proposition is metaphysically necessary iff it is true in virtue of the essence of all things.

Since its introduction in contemporary literature (Fine, 1994, 1995c), the view has become very popular (with too many supporters to be meaningfully listed here), although it has its detractors (Cowling, 2013; Bovey, 2020; Wildman, 2021).

According to neo-Aristotelian essentialism, a thing has a nature or essence. This essence defines, not a name or expression referring to the thing, but the thing itself. In that way, the essence is a *real* definition, by contrast to a merely linguistic one. While there are various accounts of how essences should be construed exactly, the most prominent version of the view (Fine, 1995a, 1995b) will do for our purposes: the essence of something is a collection of propositions which define the thing in question. Thus, claims like 'Socrates is essentially such that p' and 'it is essential to Socrates that p' mean that 'p' is one of the propositions in Socrates' essence.

Nothing in what follows will rely on this specific conception of essence. In particular, rather than construing the essence of something x as a collection of propositions defining x, we can construe this essence as a collection of properties instantiated by x. Under this account, the claim that Socrates is essentially such that Socrates is a farmer (more naturally: the claim that Socrates is essentially a farmer) does not mean that the proposition 'Socrates is a farmer' is in the essence of Socrates. Rather, it means that the property *being a farmer* is in the essence of Socrates. The reader is free to adopt this construal should they prefer it.

It is not only things taken individually that have an essence, but also things collectively. Just as Socrates has an essence, so do Socrates and Plato taken together, as well as Socrates, Plato, and Aristotle. And, just like the essence of a single thing, the essence of some things taken together is a collection of propositions. Thus, to say that Socrates and Plato taken together are essentially such that p is to say that 'p' is among the essence of Socrates and Plato. Similarly, to say that it is essential to all things (taken

together) that p is to say that 'p' is among the essence of all things. Importantly, to say that 'p' is in the essence of some things taken together is not to say that 'p' is in the essence of each of these things. For example, presumably, it is in the essence of Socrates and Plato taken together that 'Socrates and Plato are distinct', even though this proposition is neither in the essence of Socrates, nor in that of Plato.

In introducing neo-Aristotelian essentialism, I have said that 'facts about necessity obtain *in virtue of* facts about essence'. Roughly put, the idea here is that facts about essence are in some sense more fundamental than facts about necessity, that necessity 'flows from' (Fine, 1994, p. 9) essence. Yet, there is some disagreement regarding how the relation between essence and necessity is supposed to be understood exactly. A recent overview of this debate can be found in Correia (2024). For our purposes, it is better to stay neutral on how exactly to interpret this expression. (I will briefly come back to this matter in the next section.)

Neo-Aristotelian essentialism is about *metaphysical* necessity. But in this case, we can be confident that metaphysical necessity is the kind of necessity we are interested in when discussing the modal problem. To make that clear, consider how neo-Aristotelian essentialism traditionally accounts for kinds of necessity other than metaphysical necessity. Given a type *K* of modality,

(2) A proposition is *K*-necessary iff it is true in virtue of the essence of all things relevant to *K*.

For example, a proposition is a conceptual necessity iff it is true in virtue of the essence of all things relevant to *K* taken together, namely the essence of all concepts. While this traditional account has been challenged and amendments proposed (Correia, 2012, 2020; Fine, 2020; Hirèche, 2022), none of those affect my point here. When we ask the modal question, we are interested in what is compatible or incompatible with the nature of all things, taken together. Thus, the things relevant to the kind of necessity in question here are all the things. Applying this to (2), we get

(3) A proposition is necessary iff it is true in virtue of the essence of all things.

where 'necessary' is used in the sense relevant to the modal question. But the right-hand side of (3) is the same as the right-hand side of (1). Therefore, the notion of necessity at play in the modal question —

the notion of necessity we have been using until now — corresponds to the neo-Aristotelian notion of metaphysical necessity.

In parallel to the neo-Aristotelian analysis of necessity, there is, of course, a corresponding analysis of possibility. Indeed, it immediately follows from (3) that the schema

(4) $\Box p$ iff 'p' is true in virtue of the essence of all things

holds for every value of p. Thus, in particular, the schema

(5) $\Box\neg p$ iff '$\neg p$' is true in virtue of the essence of all things

holds for every value of p. But (5) is equivalent to

(6) $\neg\Box\neg p$ iff it is not the case that '$\neg p$' is true in virtue of the essence of all things.

And so, given the standard definition of '$\Diamond$' as '$\neg\Box\neg$',

(7) $\Diamond p$ iff it is not the case that '$\neg p$' is true in virtue of the essence of all things

holds for every value of p as well. Thus, a proposition is possible iff it is not the case that its negation is true in virtue of the essence of all things. More naturally: a proposition is possible iff its truth is not ruled out by the nature of all things.

At this point, we have an analysis of the kind of possibility at play in the modal question. This result can be combined with the account of kinds of possibility introduced in the previous section. Remember that the kind of possibility at play in the modal question can be characterized by a set $\mathcal{F}_W$ whose members are functions mapping properties to sets of things. The idea, then, is that $\mathcal{F}_W$ contains all and only those functions that 'make true' the propositions holding in virtue of the essence of all things, just like the set $\mathcal{F}_N$ characterizing nomic possibility contains all and only those functions that 'make true' the propositions characterized by the laws of nature. For example, suppose that 'Socrates is human' is true in virtue of the essence of all things. Then, $\mathcal{F}_W$ will only contain functions f_w such that Socrates $\in f_w$(*being human*). If we repeat this process for every proposition true in virtue of the essence of all things, we will have entirely defined $\mathcal{F}_W$, i.e. compatibility with the nature of things, i.e. metaphysical possibility in the neo-Aristotelian sense.

Again, it is important to note that nothing in what we just said allows us to conclude how the kind of possibility we are interested in here relates to other kinds of possibility. For example, we cannot conclude from what we said that every nomic possibility is a metaphysical possibility in the neo-Aristotelian sense, and so that every nomic possibility is a possibility in the sense of 'possibility' of interest to the modal question. It is not an incoherent view that the proposition 'Socrates is human' is true in virtue of the essence of all things, even though its negation is consistent with the laws of nature. Thus, it is not incoherent that a proposition is nomically possible, even though it is not possible in our sense.

A fortiori, we cannot assume that metaphysical possibility in the neo-Aristotelian sense — and so, possibility in the sense relevant to the modal question — is possibility 'in the highest degree' (Kripke, 1972, p. 99), 'in the widest sense' (Stalnaker, 2003, p. 203), or that a proposition is metaphysically possible iff it has at least one sort of objective possibility (Williamson, 2016, p. 455). To be clear, the point is not that using 'metaphysical possibility' in that way is inappropriate (although see Clarke-Doane, 2021). Rather, the point is that if 'metaphysical possibility' is used in that way, then the kind of possibility we are interested in when discussing the modal question is not metaphysical possibility.

33. Essentialism

While neo-Aristotelian essentialism is not in itself an epistemological thesis, it has spurred a variety of bridge views. Indeed, it is natural to take what 'makes true' a given necessary fact as evidence for the necessary statement corresponding to this fact. Thus, just like essential facts are the metaphysical basis of facts about necessity, they epistemically support statements about what is necessary. For example, on such an account, 'Socrates is necessarily human' is supported by the fact that it is in the essence of Socrates to be human, and 'Socrates necessarily belongs to { Socrates }' is supported by the fact that it is in the essence of { Socrates } to have Socrates has a member.

Various essentialist bridge views have been proposed in the literature (Hale, 2003, 2013, sec. 11.3-4; Jago, 2021; Lowe, 2008, 2012; Mallozzi, 2021a). While these views differ in their implementation, they all maintain the same general two-part explanation of our knowledge of what is necessary. First, the view says how we come to know that a proposition is essential to something, e.g. how we come to know

that it is essential to Socrates that Socrates is human. Second, the view puts forward a bridge principle linking essence and necessity. In its simplest form, this principle claims that instances of the schema

(1) If it is essential to x that it is *F*, then it is necessary that x is *F*

holds, where *F* stands for a predicative expression (a predicate without its copula), such as 'human', 'not human', 'a member of { Socrates }', etc. The idea is that we gain knowledge of what is necessary from our knowledge of essence by recognizing and correctly applying this principle.

It should be noted that the bridge principle is sometimes slightly more complicated than the one just introduced. Rather than being about all the essential properties of something, the principle sometimes focuses on the essential properties required for something to belong to a certain kind (Mallozzi, 2021a). That is, the schema at the heart of the bridge principle is not (1), but rather

(2) If it is essential to *x* being *F* that it is *G*, then it is necessary that anything that is *F* is *G*,

where *F* and *G* stand for predicative expressions. However, for the purposes of the present discussion, it will not matter if we ignore these complications and stick to schema (1).

Essentialist bridge views are primarily concerned with our knowledge of what is necessary. But these approaches are also typically intended to say something about our knowledge of what is merely possible. Just as it is for statements about what is necessary, statements about what is merely possible are supposed to be supported by appealing to the essence of things. However, in this case, we are not ultimately interested in a thing's essential properties, but in the thing's non-essential properties. That is, we look for what the essence leaves open.

To see how this is supposed to work, consider the statement 'it is possible for Socrates to be a farmer'. First, an essentialist approach to modal epistemology will tell us something about how we can gain knowledge that Socrates does not essentially fail to instantiate the property *being a farmer*. Unsurprisingly, this will go hand in hand with the proposed account of how we can gain knowledge of essence. Then, we move from our knowledge of essence to knowledge of possibility. Just like we have a bridge principle between the essential and the necessary, we have a bridge principle between the non-essential and the merely possible. Assuming that I am aware of this principle and that I correctly apply

it to my knowledge that Socrates does not essentially fail to be a farmer, I gain knowledge that it is possible for Socrates to be a farmer.

What is the relevant bridge principle here? A simple suggestion states that instances of the schema

(3) If it is not essential to something x that it is *F*, then it is possible that x is not *F*

hold, where *F* is again a predicative expression. This simple suggestion will not do. While this schema appears to hold in many cases — including when the value of *F* is 'not a farmer' and 'a farmer' —, there are clearly cases where it does not hold. Even though Socrates is not essentially a member of its singleton, it is nonetheless necessarily a member of its singleton. Similar counterexamples are not hard to come by (Dunn, 1990; Fine, 1994).

The obvious fix here is to consider not just the essence of Socrates, but also the essence of Socrates's singleton. More generally, it has been proposed (Jago, 2021, p. S1995) that if one wants to determine whether a statement p is possible, one should consider all the things p is about. Thus, an appropriate bridge principle between the non-essential and the possible will rather claim that the following holds for every value of p

(4) If it is not in the essence of all things 'p' is about that $\neg p$, then it is possible that p.

For example, consider the statement 'Socrates is a farmer'. Let us assume that this statement is about Socrates and nothing else besides him. It is not in the essence of Socrates that he fails to instantiate the property *being a farmer*, i.e. it is not essential to Socrates that he is not a farmer. Thus, according to (4), it is possible that Socrates is a farmer. While the notion of aboutness is not precisely defined by the proposed account, our understanding of this notion is supposed to be clear enough for the purposes of judging which sentences are possible. Notice also that as far as the sentence 'it is possible for Socrates to be a farmer' is concerned, it does not appear to matter whether one goes with the simple schema (3) or the more complex schema (4).

I have no particular quarrel with these essentialist approaches to modal epistemology regarding what they say about our knowledge of necessary. However, I find that the way they account for our purported knowledge of what is merely possible is unsatisfactory. Indeed, the bridge principle between the non-

essential and the possible — in both its naive and sophisticated versions — is unsubstantiated. I do, of course, agree that the converse of (4) holds for every value of p. If it is possible for Socrates to be a farmer, then Socrates being a farmer is not ruled out by the essence of Socrates. But I find no good reason to maintain that (4) holds in the same way.

Unfortunately, not much is said in the literature about why those bridge principles should be accepted. (This is not very surprising. Remember that the essentialist approaches to modal epistemology discussed here are primarily concerned with our knowledge of necessity. Thus, much more attention is given to the link between the essential and the necessary than to the link between the non-essential and the possible.) Something like schema (4) is presented as a heuristic (Jago, 2021, p. S1995) to gain knowledge of possibilities, but nothing is done to show that this heuristic is functional.

Perhaps one source of support for instances of (4) is the general thought that, roughly speaking, the modal profile of something is solely determined by the essence of this thing. Given a thing a, it is only the essence of a that imposes constraints on what properties a could and could not have. For example, the fact that Socrates could not have been a poached egg is solely determined by Socrates' essence. And (assuming contingentarianism) so is the fact that Socrates could have been a farmer. The point naturally expands beyond properties to relations of any arity: it is only the (collective) essence of $a_1, \ldots, a_n$ that determines what relations could and could not hold between $a_1, \ldots, a_n$. And so, given an r-statement p asserting that a relation holds between $a_1, \ldots, a_n$, it is only the essence of $a_1, \ldots, a_n$ that determines whether it is possible that p is true. And $a_1, \ldots, a_n$ are precisely those things p is about – hence (4).

This does not provide adequate support for the essentialist bridge principle. The thought that the modal profile of something is solely determined by the essence of this thing is highly suspicious at best. Perhaps the fact that Socrates could not have been a poached egg does indeed solely hold in virtue of the essence of Socrates. But now, consider the fact that Socrates could not have been a married bachelor. It is doubtful that this fact has much to do with the essence of Socrates. Rather, it seems that what is relevant here is the (collective) essence of the properties *being married* and *being a bachelor*. Or consider the fact that it is possible for Socrates to be a poached egg or not a poached egg. Again, this seems to have very little to do with the essence of Socrates. (And it has also very little to do with the essence of *being*

a poached egg, for that matter.) The thought that it is only the essence of a that imposes the constraints on what a could or could not be is not less suspicious than (4) itself – and so, it is not a good source of support for (4).

Another reason to maintain (4) may be the following: none of (4)'s instances appear clearly false, while many of (4)'s instances are taken to be true. Indeed, when I consider Socrates, it seems to me that Socrates was not essentially a philosopher and that Socrates could have been a farmer. Similarly, considering myself, I find it obvious both that I am not essentially sitting and that I could have been standing. In the same vein, I find it obvious both that Neptune could have been discovered in 1847 (rather than 1846) and that 'Neptune was discovered in 1847' being possibly true is not ruled out by the essence of anything this sentence is about. Again and again, I notice the same sort of link between those c-statements that I tend to think as true and the essence of the things these statements are about. From these observations (and independent arguments against the reduction of essence to modality), I conclude by induction that (4) holds for every value of p. This can then be used to evaluate more controversial c-statements.

This argument is question-begging. The induction only gets off the ground if we already grant that some c-statements — largely uncontroversial ones, such as 'Socrates could have been a farmer' or 'I could have been standing' — are true. But the set of cases for the modal problem is the set of all c-statements, not just the set of those c-statements that are controversial. Thus, assuming that some c-statements are true means assuming a (partial) solution to the modal problem, which defeats the purpose of attempting to solve this problem in the first place. More specifically, assuming that some c-statements are true comes down to assuming the falsity of necessitarianism, which is obviously inappropriate given the current dialectical setting.

Perhaps another motivation for accepting schema (4) is its resemblance to the following schema:

(5) If it is not in the essence of all things that $\neg p$, then it is possible that p.

Contrary to what is the case for (4), there appears to be a good reason to believe that (5) holds for every value of p, at least if one is working within a neo-Aristotelian framework. Indeed, remember that the neo-Aristotelian maintains that the schema

(6) It is necessary that p iff 'p' is true in virtue of the essence of all things

holds for every value of p. And so, the thought goes, the schema

(7) It is necessary that p iff it is in the essence of all things that p

holds for every value of p (Jago, 2021, p. S1987). Given the left-to-right direction of (7), (5) follows by contraposition and the standard equivalence between 'it is not necessary that $\neg p$' and 'it is possible that p'.

It is not at all clear that the passage from (6) to (7) is legitimate. Indeed, it is not generally the case that if p is true in virtue of a collection C of propositions, then p is a member of C. For example, even though a conjunction is true in virtue of its conjuncts, a conjunction is obviously not identical to one of its conjuncts. So, in general, 'p is true in virtue of C' is not equivalent to 'p is in C'. And no reason is given why this equivalence should hold when C is the collection of propositions corresponding to the collective essence of all things.

It should, however, be noted that (7) is nonetheless justified under some conception of the link between essence and necessity. As we saw in the previous section, it is not completely clear how the expression 'in virtue of' as it appears in (6) is to be understood. This leads to some disagreement among neo-Aristotelian essentialists regarding the exact nature of the link between essence and necessity (Correia, 2024, pp. 132–133). For example, it is suggested that the relation between essence and necessity is understood in terms of grounding, reduction, or constitution. More relevant to our discussion, one may also propose an identification of necessity to essence, along the following lines: for it to be necessary is for it to be in the essence of all things. More long-windedly:

(8) For it to be the case that $\Box p$ is for it to be the case that it is in the essence of all things that p.

Given (8), (7) – and so, (5) –follows. But keep in mind that (8) and similar identifications of necessity to essence are controversial. Note also that the essentialist bridge views mentioned at the beginning of

this section do not characterize the link between essence and necessity in this way. (Although, I see no obvious reason why an essentialist bridge view must reject this conception.)

Even if the proponent of essentialist bridge views manages to establish (5), this is hardly of any use as far as our knowledge of possibilities is concerned. We might know that it is not in the essence of a particular thing or a restricted plurality of things that $\neg p$. However, we typically do not know that it is not in the essence of all things that $\neg p$, because we do not know what the essence of all things is. One need not even consider the collective essence of all things to see the problem. Perhaps I can indeed know that the proposition 'Socrates is a farmer' is not essential to Socrates. And perhaps I can also know that this proposition is not essential to the property *being a farmer*. But it is less clear that I can know that this proposition is not essential to Socrates and *being a farmer* taken together. And the matter becomes even less clear when we consider the collective essence of Socrates, *being a farmer* and the fact that Socrates is a farmer (assuming there is such a thing). So, even if schema (5) holds, it will not make a good bridge principle.

There is another obvious suggestion about what the bridge principle between the non-essential and the possible should be:

(9) If it is not the case that '$\neg p$' is true in virtue of the essence of all things, it is possible that p.

This straightforwardly follows from the neo-Aristotelian analysis of possibility, according to which a proposition is possible iff it is not the case that its negation is true in virtue of the essence of all things. Even though there is little doubt that (9) holds, this is of no help to the friend of the essentialist bridge view. Like (5), and for the same reasons, (9) will not make a good bridge principle. We do not know what is or is not in the essence of all things, and we know even less what is and is not true in virtue of the essence of all things.

To be clear, the issue here is not so much with the essentialist bridge views themselves, but rather with their application to the modal problem. As I have mentioned, these views are really trying to explain modal knowledge, not to provide evidence for modal statements. So, just like they start from the assumption that we know that Socrates could not have been a poached egg, they start from the

assumption that we know that Socrates could have been a farmer. However, since such knowledge presupposes that Socrates could have been a farmer, making this assumption is inappropriate for a treatment of the modal problem. So, these views are not suitably applied to a treatment of the modal problem.

Even ignoring the above, essentialist bridge views face some challenges. One issue is that the principle linking essence and necessity is presumably a necessary truth itself. But if so, an essentialist bridge view should be able to provide evidence for this principle, just like it does for other necessary truths. But it is not clear how it can do so without entering a potentially problematic regress or circularity (Koslicki, 2024, p. 327).

Another issue is that an essentialist approach will have to provide some account of how we know that a given property is essential or non-essential to something. For example, how come I know that Socrates is essentially human, but not essentially a philosopher? Here, a rationalist answer is tempting: I gain knowledge of essences because I am the subject of a mental state with the right intentional content, or because I am able to have this mental state. There are various suggestions as to what the relevant mental state is exactly. A simple suggestion is that this state is an intuition, a rational insight, or a similar *ad hoc* intellectual faculty. A more sophisticated suggestion is that one comes to know the essence of something x by understanding a special proposition defining what x is, by understanding x's real definition (Lowe, 2012, p. 946). And so, I know that a certain property is essential to x just in case I understand that x having this property is implied by x's real definition. It has also been suggested that one knows the essence of x by singling out in thought a bundle of x's properties. Thus, roughly speaking, I know that Socrates is essentially human but not essentially a philosopher because my concept of Socrates has built into it the property *being human* but not the property *being a philosopher* (Jago, 2021, p. S1992).

Unsurprisingly, this sort of rationalism about essence faces a difficulty very similar to the one encountered by modal rationalism (see previous chapter). Certainly, it is not essential to me that I have or lack a particular intuition regarding the nature of Neptune. So, according to the above bridge principle between essence and possibility, it is possible for me to have the intuition that (say) it is in the nature of

Neptune to have been discovered in 1846. But then, why should this merely possible intuition be set aside in favour of my actual intuition, according to which it is *not* essential to Neptune that it was discovered in 1846? Here, it seems that the rationalist about essences must either give up the bridge principle or give up our knowledge of essence in the first place. In any case, they will have failed to provide evidence for the claim that it is possible for Neptune to have been discovered before or after 1846. Other versions of rationalism about essences appear to fall prey to the same argument. It is not part of my essence that I understand that *having been discovered in 1846* is not part of Neptune's nature, or that this property is not part of the bundle of properties I used to single out Neptune.

However, not every essentialist bridge view faces this issue, because not every essentialist bridge view is rationalist. Indeed, according to some essentialist approaches, we can gain knowledge of essence by empirical means. For example, it has been recently suggested that the essential properties of things are those that are best able to explain how things are, and that we learn what these properties are by empirical investigation (Mallozzi, 2021a, 2021b). In this case, there is no reason to believe that the result of the investigation is not essential to this investigation. (Whether there are reasons to believe that the result *is* essential to the investigation remains to be seen.) So, it is not particularly credible that it is possible for the investigation to yield different results from those it actually yields. Thus, the objection that threatened the rationalist is blocked.

34. Potentialism

According to potentialism, possibility is founded in potentialities. In this context, a potentiality is a property of a special kind. While an essential property captures the essence of something — what the thing is, its real definition — a potentiality captures the potential of something — what the thing can do or become. Potentialities include (but are not limited to) dispositions, such as the disposition of a glass to break or the disposition of a person to get angry. While potentialism has only recently been introduced in the literature (Vetter, 2015), similar views according to which possibilities arise from dispositions or powers of things have been proposed before it (Borghini & Williams, 2008; Jacobs, 2010; Pruss, 2002; Monadori, 1973).

A central tenet of potentialism is an analysis of possibility in terms of potentialities. Roughly, this analysis says that it is possible for something to be F iff x has a potentiality to be F. More carefully, the analysis states that the schema

(1) It is possible that p iff something has an iterated potentiality for it to be the case that p

holds for every value of p (Vetter, 2015, p. 197).

Without going into unneeded details, an iterated potentiality is the potentiality for something to have a potentiality (to have a potentiality, etc.) to be such that p. To use a paradigmatic example: I do not have the ability to play the piano, but I have the ability to learn to play the piano, i.e. the ability to be able to play the piano. Thus, I have the iterated potentiality to play the piano. By contrast, my desk does not have the ability to play the piano. Nor does it have the ability to learn to play the piano. So, my desk does not have the same iterated potentiality as me.

Note that as the expression is used in (1), what we would normally call a non-iterated potentiality is considered a once-iterated potentiality. Thus, Martha Argerich and I both have an iterated potentiality to play the piano. The difference is that Argerich's potentiality is once-iterated, while mine is twice-iterated. Still, according to (1), it is possible for both Argerich and me to play the piano.

There is a clear parallel between neo-Aristotelian essentialism and potentialism (Vetter, 2021). Potentialities stand relative to possibility in much the same way as essential properties stand relative to necessity. It is therefore unsurprising that, in parallel to the essentialist bridge views discussed in the previous section, there are also potentialist bridge views (Vetter, 2016, 2023; Strohminger, 2015). As other bridge views, these have two main components: an account of how we come to know potentialities and a principle allowing us to pass from knowledge of potentialities to knowledge about what is merely possible. While my focus is mainly on the second component, it is worth saying some words about the first one.

According to potentialist approaches, we learn about the potentialities of something through roughly the same means we learn about any other property of this thing. In case the potentiality is our own, we can rely on its phenomenology. Similarly to how we feel hunger or sleep, we feel that we are disposed to

talk and we feel our ability to stand or play the piano. For potentialities beyond our own, we also proceed in much the same way as we do for other properties. Perception, and in particular sight, appears to play an important role here. As I see that the vase is white or that the couch is large, I see that the vase is fragile or that the couch can go through the door. (This is not to say that one perceives fragility by exactly the same means as one perceives whiteness. The perception of fragility might not be quite as low-level as the perception of whiteness, and will perhaps need to be accompanied by some sort of imagination-aided simulation. At the same time, the alleged difference between a perception of whiteness and a perception of fragility might only be because fragility and other potentialities are in some sense more complex properties than whiteness. If this is so, the difference is not so much a difference in how we perceive as it is a difference in what we perceive.)

Such an account has the virtue of requiring no special epistemic faculty to access the modal realm. Instead, we learn about what is possible through much of the same means we use to learn about what is the case. This account is also able to explain why some c-statements are more controversial than others. For example, we are less hesitant to maintain 'I could be standing (rather than sitting)' than we are to maintain 'Venus could be a moon' or 'there could be phenomenal zombies'. This is not surprising under the potentialist approach, since the former statement is closer to our everyday experience than are the latter statements. A similar phenomenon exists even for non-modal statements: compare 'I am sitting' with 'there are no phenomenal zombies'.

Moreover, since knowledge of potentialities is gained through empirical means, the account avoids the challenge faced by modal rationalists, for a reason similar to the one outlined at the end of the previous section. I am not able to fly and I do not either have the potentiality to feel that I have this ability (at least not in the way that I have the potentiality to feel that I can stand or win a game of chess). Thus, it is not particularly credible that it is possible for me to feel that I am able to fly.

I have no particular qualms with this first component of potentialist bridge views. I think the potentialist is right in maintaining that there are abilities, affordances, dispositions, and, more generally, potentialities. I do think that I can stand, that my mug can break, and so on. Moreover, I think that we know about at least some of these potentialities, especially those that concern us directly. As it has been

noted (Gibson & Pick, 2003, p. 178; Vetter, 2023, sec. 2.1), it is hard to explain how we plan and execute our actions if we do not have such knowledge. However, the second component of the view is problematic. Unless one is already assuming contingentarianism, there is no good reason to believe that knowledge of potentialities yields knowledge of what is merely possible, at least not in the sense of 'possible' which is of interest to us here. From the fact that I have the ability to be standing, I cannot conclude that it is compatible with the nature of things that I am standing. To put the point otherwise, it is illegitimate to pass from 'I can be standing' to 'I could be standing' if 'can' expresses an ability and 'could' express compatibility with the nature of things. I will now say more about this point.

What principle does the potentialist bridge view maintain to link potentialities and possibilities? The obvious answer is that this principle is just the left-to-right direction of the potentialist analysis of metaphysical possibility. More precisely, this principle states that the schema

(2) If something has an iterated potentiality for it to be the case that p, it is possible that p

holds for every value of p. There are some variations on this principle. In particular, (2) is sometimes (Strohminger, 2015, p. 367) replaced by

(3) If *S* is able to φ, then it is possible for *S* to φ.

It is worth noting that this schema has been attacked (Spencer, 2017). Roughly, the claim here is that the schema fails in some cases, more specifically in cases where *S* ability is necessarily unexercised. In those cases, S is able to φ (since an unexercised ability is still an ability), but it is not possible for *S* to φ (since the ability is necessarily unexercised).

The following is supposed to provide an example of a necessarily unexercised ability. Consider the conjunction $h \wedge l$, where h is the complete specification of the initial conditions of the universe, and l is the complete specification of the laws of nature. Assume that determinism — the view that $h \wedge l$ determines the conditions of the universe at any time — is true. There seem to be cases where *S* is able to learn $h \wedge l$, but does not exercise this ability. Suppose that S is a bright student and that students in the community of *S* typically learn $h \wedge l$. However, suppose that *S* missed the class about $h \wedge l$, and that the subject never comes up afterwards — so that *S* never learn $h \wedge l$. According to the objection, this is

a case where S is able to learn $h \wedge l$, but does not exercise their ability. But if there are such cases, S's ability to learn $h \wedge l$ is necessarily unexercised. Indeed, the only worlds at which S is able to learn $h \wedge l$ are worlds such that $h \wedge l$ is true at those worlds. But since determinism is true, every world at which $h \wedge l$ is true is a world at which S does not exercise their ability to learn $h \wedge l$. So, there is no world at which S learn that $h \wedge l$, even though S is able to learn $h \wedge l$. This provides a counterexample to (3). Similar cases that do not presuppose determinism can be constructed.

These counterexamples have been criticized (Nguyen, 2018). The main worry here is that the proposed cases are not cases where S is able to learn that $h \wedge l$, despite what our intuitions may tell us. For my part, I also worry that the purported counterexamples do not work, although I do so for a different reason: I am unsure that the proposed cases are possible. Anyway, we can leave the discussion of (3) here. In what follows, I will focus on the version of the bridge principle formulated with (2).

Since (2) is a straightforward consequence of (1), anyone accepting the potentialist analysis of possibility should accept the suggested bridge principle as well. More generally, whatever support there is for potentialism will also serve as support for the suggested bridge principle. This is certainly true. However, the worry here is not the proposed bridge principle is false or that it lacks support, but rather that the proposed bridge principle is irrelevant to our purposes. Indeed, if (2) is supposed to link potentiality to possibility of the kind of interest to us in the modal question, we must ensure that 'possible' in (2) is used in a sense relevant to the modal question. More precisely, we must ensure that if a proposition is possible in the sense of (2), it is possible in our sense. Fortunately, there is an easy way to ensure this constraint is satisfied. Since our notion of possible is the neo-Aristotelian notion of metaphysical possibility, we can rewrite (2) using the neo-Aristotelian analysis of metaphysical possibility presented above:

(4) If something has an iterated potentiality for it to be the case that p, it is not the case that '$\neg p$' is true in virtue of the essence of things.

What supports (4)? Not whatever supports (2) — or more generally, not whatever supports the potentialist analysis of possibility. At least *prima facie*, (2) is much more plausible than (4). It seems clear to me that if I have the ability to stand, it is possible for me to stand, in at least some sense of

'possible'. However, it seems much less clear to me that if I have the ability to stand, the fact that I am not standing does not hold in virtue of the essence of things. On the contrary, it seems to me that this fact *does* hold in virtue of the essence of things — more precisely, the essence of the fact that I am sitting, or perhaps the collective essence of the property *being seated* and myself.

This indicates that (2) is not naturally read as equivalent to (4). More precisely, it indicates that in the most natural reading of (2), 'possible' does not express metaphysical possibility in the neo-Aristotelian sense, and so does not express the kind of possibility of interest to us when we ask the modal question. Because of this, evidence that one may present in support of the natural reading of (2) will not also be evidence for (4). But then, it is hard to see where the support for (4) may come from.

Perhaps one will still be troubled by the idea that even though something has a potentiality for it to be the case that p, it may not be compatible with the nature of things that p. How come I have the ability to stand if it is not compatible with the nature of things I am standing? How come I have the iterated potentiality to play the piano if 'I do not play the piano' is ruled out by the nature of things? This trouble, I think, is rooted in an equivocation of the notion of metaphysical possibility. Consider the following two schemata:

(5) For every kind K of possibility, if it is K-possible that p, it is metaphysically possible that p.

(6) It is metaphysically possible that p iff it is compatible with the nature of things that p.

It is clear that if something has a potentiality for p, then for some kind K of possibility, it is K-possible that p. Thus, from (5) and (6), we get that it is compatible with the nature of things that p.

At first glance, (5) and (6) look innocuous. But one should be careful here. As we saw above, there are at least two distinct notions of metaphysical possibility. On the one hand, there is what I have called the neo-Aristotelian notion: something is metaphysically possible iff it is not ruled out by the nature of all things. Using this notion, (6) is uncontroversial, but (5) is not. On the other hand, there is the so-called absolute notion: something is metaphysically possible iff it is objectively possible, i.e. iff it has some kind of objective possibility. Using this notion, (5) is uncontroversial, but (6) is not.

I have argued that potentialist bridge views do not warrant contingentarianism. But here, one may object that what I have really done is shown that, contrary to what I said above (§32), the kind of possibility at play in the modal question is not metaphysical possibility in the essentialist sense. Indeed, the very fact that the essentialist notion of possibility is unable to support contingentarianism is a reason to drop this notion and replace it with the potentialist notion – or, more generally, with some other notion of possibility under which contingentarianism turns out to be supported.

Assuming that contingentarianism is indeed unwarranted under the essentialist notion of possibility, I do not see why this should prompt us to abandon this notion in favour of another. Perhaps the idea is this: because we know that contingentarianism is warranted, the notion of possibility used to formulate contingentarianism must be one under which contingentarianism turns out to be warranted. But this suggestion is obviously inappropriate. Given the current dialectical setting, we certainly cannot assume that contingentarianism is warranted (let alone true).

Still, this objection is built on a legitimate worry, namely that my characterization of the kind of possibility at play in the modal question is overspecific. Consider a candidate answer to the modal question such as

(7) I could have been standing rather than sitting.

If the essentialist conception of possibility does not allow us to warrant such statements, why bother with this conception in the first place? After all, the 'could' in (7) does not need to be read as expressing compatibility with the nature of all things. There are perfectly natural readings of (7) which do not involve metaphysical possibility in the essentialist sense – including the potentialist reading discussed in this section.

My reply here is roughly the same as the one I gave above (§17) regarding my definition of the modal problem: my choice here is arbitrary. Not completely arbitrary, of course. The kind of possibility at play in such statements as (7) cannot be any kind of possibility. For example, if (7) is supposed to be a candidate answer to the modal question, the 'could' cannot plausibly be taken to express nomic or conceptual possibility. But it is arbitrary nonetheless. While the essentialist notion of possibility is a

natural way to specify the meaning of 'could' in (7), I readily agree that there are other equally natural ways to specify this meaning, including potentialism. Yet, if progress is to be made on the modal problem, one of these interpretations must be chosen. And so, I chose one. I am not particularly thrilled by this result, but I do not know how to avoid it.

35. Induction

Before closing this chapter, I wish to discuss an account of modal knowledge introduced in Roca-Royes (2017). (All page numbers in this section are in reference to this text.) While this account is not itself a bridge view in the sense defined above, it is similar to bridge views in that it derives our modal knowledge from our knowledge of what is actual, together with our knowledge of a general principle linking the actual to the merely possible.

Roca-Royes introduces the view with the following example. Suppose that we know that a particular wooden table, call it Messy, could break. This knowledge is explained as follows.

> *If* we know […] that some other wooden table very much like Messy, *a*, has broken, and *if* we know that actuality implies possibility—that is, if we know that $p \rightarrow \Diamond p$ —we can warrantedly transition to: *It is possible that a breaks.*
>
> *If*, in addition, we know that objects similarly made out of the same sort of materials are susceptible to similar effects, and *if* we know that Messy is similarly made out of the same sort of material as *a* was made of, we can warrantedly transition to: *It is possible that Messy breaks*. (p. 227)

Relying on this example, the account can be reconstructed as follows. Following Roca-Royes' notation, let $\varphi(x)$ and $\psi(x)$ stand for two open sentences, e.g. 'x is made of wood' and 'x breaks'. Let b be the name of an individual, e.g. 'Messy'. The goal is to explain how we are warranted in maintaining (or, how we know that)

(1) $\Diamond\psi(b)$.

In our example, this corresponds to 'it is possible for Messy to break'.

According to the account under consideration, one's knowledge of (1) can be explained by reference to one's knowledge that

(2) $\varphi(b)$,

together with one's knowledge of the following principle:

(3) For all $x, \varphi(x) \rightarrow \Diamond\psi(x)$.

In fact, Roca-Royes does not precisely talk about (3), but rather about 'a principle of the form $\varphi(x) \rightarrow \Diamond\psi(x)$' (p. 230). However, since $\varphi(x)$ and $\psi(x)$ are open sentences, an expression of form $\varphi(x) \rightarrow \Diamond\psi(x)$ is itself an open sentence. Thus, this expression is not susceptible of being true. And so, it is not a principle. I believe that my proposal is the one that is closest to the spirit of the original account. Note that we need not assume that the quantifier in (3) ranges unrestricted.

Given that one knows both (2) and (3), one is warranted to conclude (1). For example, suppose that (2) is the claim that Messy is made of wood and that (3) is the principle that things made of wood can break. Clearly, one who knows this may safely maintain that Messy can break. This reasoning corresponds to the one given in the second paragraph of the passage cited above.

This account presupposes that (3) is known (or, at least, that we are warranted to maintain it). And so, one may legitimately ask for an explanation of this knowledge. It is at this point that induction enters the picture. Knowledge of the general principle (3) is 'grounded in knowledge that, for some a, both $\varphi(a)$ and $\Diamond\psi(a)$ (given that $\psi(a)$), plus *reliance* on the uniformity of nature' (p. 230). For example, consider again our knowledge that things made of wood can break. According to Roca-Royes, there are two main elements explaining this knowledge. First, our knowledge that some particular thing a can break, a piece of knowledge itself grounded in our knowledge that a actually broke. Second, our reliance on the uniformity of nature, i.e. on induction broadly speaking.

Depending on what the general principle (3) is exactly, knowing that a single thing a is both $\varphi(a)$ and $\Diamond\psi(a)$ may not be enough. For the induction to go through, one may need more instances of the principle. According to Roca-Royes, the number of instances required depends in part on how determinate the property expressed by the antecedent $\varphi(x)$ is. If $\varphi(x)$ expresses a determinate property, fewer instances will be required than if it expresses a determinable one. For example, suppose that $\varphi(x)$ stands for 'x is a qualitative duplicate of Messy – i.e. x is a table of the same shape and material as Messy, built by the same technique, around the same time, and whose causal history is roughly the same

as Messy'. In this case, $\varphi(x)$ expresses a very determinate property. Thus, knowledge of a single thing a such that (i) $\varphi(a)$ and (ii) a can break is enough to warrant the general principle that for all x, if $\varphi(x)$, x can break. Thus, if I know that a qualitative duplicate (in the sense just given) of Messy can break, it is enough to conclude that Messy can break. By contrast, since 'x is made of wood' expresses a rather determinable property, the general principle 'for all x, if x is made of wood, x can break' must presumably be grounded in more than one instance.

It is not completely clear that the paradigmatic examples discussed by Roca-Royes to introduce her view are relevant to the debate between necessitarianism and contingentarianism. Indeed, she relies on the following four main examples (p. 225):

(4) It is possible that the wooden table in my office breaks.

(5) It is possible that John Kennedy dies of a heart attack.

(6) It is possible that Gandhi is born on 1/10/1869.

(7) It is possible that Obama is born in Washington.

And it is not clear that in (4)–(7), the expression in the scope of the possibility operator is an r-statement. Of course, this does not mean that Roca-Royes' account is irrelevant to the present debate. Indeed, it seems that in addition to explaining our (alleged) knowledge of (4), the account may also be applied to explain our (alleged) knowledge of

(8) It is possible that the wooden table in my office has the property *being broken*.

Here, the statement in the scope of the possibility operator is clearly an r-statement.

It should also be kept in mind that the induction-based view discussed here can easily collapse into a version of the potentialist bridge view introduced in the previous section. Indeed, it appears that one motivation to maintain the general principle (3) is the view that a thing's dispositional properties (what potentialities it has) depend on its categorical properties:

> What allows us to transition to the pieces of *de re* possibility knowledge (of unrealized possibilities) is, at bottom, the idea that causal *powers* and effect *susceptibility* depend on qualitative character (p. 229, italics in original).

But if this is indeed how the account should be understood, explaining knowledge of (or providing support for) an instance of $\Diamond\psi(b)$ is really a two-step process. First, explain how we know that b has a particular potentiality, e.g. explain our knowledge that Messy is breakable. Second, explain how, from this, we are warranted to conclude that $\Diamond\psi(b)$, e.g. explain how we are warranted to conclude that it is possible for Messy to break. Roca-Royes' paper moves freely from talk of dispositions – e.g. 'Messy is breakable' – to talk of (metaphysical) possibility – e.g. 'it is possible that Messy breaks'. This suggests that the second step of the explanation is not seen as a problem under this account. But this step is problematic, for the reasons outlined in the previous section.

Fortunately, we are not forced to understand Roca-Royes' account as a version of the potentialist bridge view. Indeed, the account holds even if references to causal powers and dispositional properties are removed. I see no reason why reliance on the uniformity of nature should allow us to conclude that wooden things are breakable, but not to conclude that wooden things can break, in the sense of 'can' relevant to the modal question. So, I this talk of dispositions in what follows.

Just as it is for the essentialist and potentialist bridge views discussed in the previous sections, the account presented here is officially concerned with *knowledge* of (mere) possibilities. However, just as it is for the bridge views, it can also be thought of as explaining what supports (mere) possibilities. So, a reply on behalf of the necessitarian is needed here.

I maintain that Roca-Royes' account cannot help the contingentarianist to establish mere possibilities – at least, not unless it is already assumed that things could have been otherwise. Roughly put, this is because the general principle of the form 'for all x, $\varphi(x) \rightarrow \Diamond\psi(x)$' put forward in support of a mere possibility $\Diamond\psi(x)$ is insufficiently supported. More specifically, the account does not tell us why we should favour a given principle of this form over another one. Remember that knowledge of the relevant principle is supposed to be grounded inductively, from knowledge of some of its instances. However, this can hardly be the whole story.

Consider

(9) For all x, if x is an egg, x can be a poached egg.

I know that some instances of (9) are true: some eggs can be poached eggs, because they actually are poached eggs. Presumably, I can inductively conclude (9) from these instances. I can then use this principle to establish the mere possibility that some yet uncooked egg can be a poached egg. So far, so good. But now, consider

(10) For all x, if x is in hot water, x can be a poached egg.

I also know that some instances of (10) are true: some things placed in hot water can be poached eggs, because they actually are poached eggs. However, in this case, it seems inappropriate to conclude (10) from these instances alone.

Assuming that it is indeed appropriate to use induction (to rely on the uniformity of nature) to conclude (9) but not (10), what explains this difference? One suggestion is that while there are no counterexamples to the former principle, there are counterexamples to the latter. This reply is unsatisfactory. On the one hand, it is unclear that there are counterexamples to (10). Perhaps kind essentialism is true and the tea leaf I just threw out of my cup cannot be a poached egg. However, given the current dialectical setting, it would be inappropriate to assume that this is the case. After all, this is precisely the sort of claim at play in the debate between necessitarianism and contingentarianism. On the other hand, it is unclear that there are no counterexamples to (9). For example, is it possible for a hard-boiled egg to be a poached egg? Again, assuming an answer to this question would be inappropriate in the current dialectical setting.

Another suggestion is that, because the property expressed by the antecedent of (10) is less determinate than the property expressed by the antecedent of (9), more instances are required to ground (10) than to ground (9) – just like more instances are required to ground 'if something is made of wood, it can break' than 'if something is a qualitative duplicate of Messy, it can break'. Again, this suggestion is unsatisfactory. The antecedent of (10) does not obviously express a less determinate property than the antecedent of (9). In any case, it does not seem hard to modify (10) so as to make its antecedent more determinate than this of (9), e.g.

(11) For all x, if x was in a pot full of gently swirling simmering water, x can be a poached egg.

Since it does not seem more appropriate to rely on induction to establish (11) than to establish (10), we have not made much progress here.

Roca-Royes remarks that in non-defective principles of form (3), the antecedent is both temporally and epistemically prior to the consequent.

> for any a, *the actualization* of $\Diamond\psi(a)$ – that is, the fact that $\psi(a)$ – is (or would be, in cases where the possibility has not been actualized) temporally posterior to (the beginning of) $\varphi(a)$. This temporal order between $\varphi(a)$ and $\psi(a)$ correlates, in the current account, with an *epistemic* priority order too. (p. 236)

This is used to solve some problematic cases with origin essentialism and species essentialism (pp. 237-238). However, it is not a method to distinguish between every appropriate and defective principle (and it is not intended to be one). In particular, this remark does little to address the difference between (9) and (10). The fact that a is a poached egg is temporally posterior to both the fact that a is an egg and the fact that a was in hot water. (I am less sure of what the epistemic priority order is here, mainly because the notion of epistemic priority used in Roca-Royes' paper is not developed in great detail.)

The fact that Roca-Royes' account gives us no reason to prefer (9) over (10) – to distinguish between appropriate and defective principles – means that the account cannot really be used to decide between necessitarianism and contingentarianism. Presumably, contingentarianists will claim that (10) is defective, because they do not want to permit too many mere possibilities. Yet, contingentarianists will claim that I know (or that I am warranted to maintain) (9), because they want to explain how I know (or how I am warranted to maintain) that some particular egg b can be a poached egg.

The necessitarian will reply to this that (9) is not less defective than (10). If (9) seems to be more plausible than (10), it is only due to some pre-existing contingentarianist assumptions, such as the assumption that things could have a somewhat different consistency, but could not belong to a different species. If induction can be applied at all here, it is only to establish such a principle as

(12) For all x, if x is an egg cooked in a certain way (put in simmering water, without its shell, for about 4 minutes, etc.), then x can be a poached egg.

But (12) is useless to derive mere possibilities. Everything x such that I know that x is an egg cooked in the relevant way is actually a poached egg. Similarly, the necessitarian claims that 'if something is made of wood, it can break' is defective, and replaces it with the like of 'if something made of wood is put under a certain amount of stress, it can break'. From the latter principle, one may not derive 'Messy can break', since Messy is not put under this amount of stress. More generally, the point here is that since Roca-Royes' account is largely neutral on which principles of the form 'for all x $\varphi(x) \rightarrow \psi(x)$' are true, the necessitarian is under no pressure to grant such a principle.

In this chapter, I have argued that bridge views fail to provide evidence for mere possibilities. Indeed, the principle these views put forward to bridge the gap between the relevant modal features and mere possibilities is inappropriate: it does not allow us to reach the right kind of possibility for the modal problem, namely compatibility with the nature of things. I have argued that this kind of possibility can be characterized along the following lines: it is possible that p iff it is not the case that $\neg p$ is true in virtue of the essence of things. The account corresponds roughly to the neo-Aristotelian analysis of metaphysical possibility.

VII. Modality and Scepticism

Remember that a c-statement is an instance of the schema $\Diamond p \wedge \neg p$, where p is an r-statement. This suggests that to provide evidence for a c-statement, one needs, at the very least, to provide evidence for each of its conjuncts. In the previous chapters, we discussed the problems that the contingentarianist faces if they want to warrant the first conjunct of a c-statement, $\Diamond p$. In this chapter, I point out that the contingentarianist — but not the necessitarian — also has difficulties to warrant the second conjunct of a c-statement, $\neg p$. In short, the reason for this is that if we are working within a contingentarianist framework — one in which $\Diamond p$ is allowed to be true — it becomes much less clear that we indeed have evidence for $\neg p$.

I start by discussing a strategy one can mount against contingentarianism, one that attacks the first conjunct of c-statements while denying the second (§36). This strategy is one put forward by a particular variety of radical scepticism (§37). I present the argument for this variety of radical scepticism (§38) and discuss each of its premises (§§39–40). I close the chapter by showing that by adopting necessitarianism, we can block the argument for radical scepticism (§41).

36. The Sceptical Strategy

As we saw (§18), contingentarianism is an almost uncontroversial view within contemporary philosophical literature. Virtually everyone agrees that at least some c-statements are true. However, there is considerable disagreement among contingentarianists regarding what c-statements are true. For example, it is debated whether an animal could belong to a different species (e.g. Barker et al., 2010; Devitt, 2008, 2021; Ereshefsky, 2010; Lewens, 2012) and whether there could be phenomenal zombies (e.g. Chalmers, 1996, pp. 94–99; Dennett, 1995; Kirk, 1974, 2007).

It is natural to consider such disagreements about c-statements as disagreements about what is possible. It is easy to explain why this move is natural. For example, consider the following c-statement:

(1) It is possible for there to be zombies, even though there are no zombies.

It is uncontroversial in the literature about phenomenal zombies that there are no zombies, i.e. no being exactly like humans except that they have no phenomenal consciousness. So, in the literature about zombies at least, any disagreement about (1) is a disagreement about its first conjunct, i.e. a disagreement about whether zombies are possible. The same point applies to less exotic c-statements. Consider

(2) It is possible for Socrates not to be human, even though Socrates is human.

Proponents and opponents of species essentialism disagree about whether this c-statement is true. However, they both agree that Socrates is human. So, their disagreement can only be a disagreement about the first conjunct of (2).

Although disagreements about c-statements are naturally seen as disagreement about what is possible, they need not be seen in that way. In principle at least, any disagreement about a c-statement can be cast as a disagreement about what is the case, rather than a disagreement about what is possible. Of course, while this option is always technically available, it is not always dialectically available. Often, a disagreement about a c-statement is only the manifestation of a deeper disagreement about what is possible. For example, a disagreement about (1) can typically be traced back to a disagreement about whether phenomenal zombies are possible (which itself finds its source in a disagreement about whether the zombie argument against materialism is sound). In this context, denying (1) while granting that zombies are possible is not dialectically permitted. Similarly, a disagreement about (2) is typically based on a disagreement about whether Socrates is essentially human (or more generally, about whether animals essentially belong to their species). Thus, in this context, one cannot reject (2) by granting its first conjunct.

However, where the modal problem is concerned, a disagreement about c-statements is not the consequence of a disagreement about what is possible. When discussing the modal problem, disagreements about c-statements are fundamental. When a proponent of necessitarianism rejects (1), they do not do so because they are committed to the view that zombies are impossible. When they reject

(2), they do not do so out of a commitment to the view that Socrates is human and that animals necessarily belong to their species. (Of course, in practice, someone defending necessitarianism will typically also maintain some view about what there is. But this view is largely irrelevant to their defence of necessitarianism.)

The above remarks have an immediate consequence for the epistemology of c-statements. The task of providing evidence for a c-statement $\Diamond p \wedge \neg p$ tends to be treated as the task of providing evidence that $\Diamond p$, when it is known or assumed that $\neg p$. In many contexts, this treatment is innocuous (and even desirable), because all parties do grant that $\neg p$. In many contexts, but not in all contexts. Where the modal problem is concerned, such a treatment is simply inappropriate. If one wishes to maintain that a c-statement is not properly supported by evidence, they can attempt to deny that there is evidence for $\Diamond p$. But in at least some cases, they may also attempt to deny that there is evidence for $\neg p$.

For example, suppose that one wishes to show that (1) is insufficiently supported by evidence. They can deny that there is evidence for 'zombies are possible', as enemies of phenomenal zombies traditionally do. But they may also point out our lack of evidence that there are no zombies. (Notice that this latter option is dialectically unavailable to someone working within the traditional debate about zombies. Since both parties in this debate start from the assumption that there are no zombies, the question of whether there is evidence that there are no zombies is simply irrelevant.)

So, if we wish to show that no c-statement is sufficiently supported by evidence — and *a fortiori* that contingentarianism is unsubstantiated — the following move is dialectically available: given any c-statement $\Diamond p \wedge \neg p$, grant $\Diamond p$, but maintain that there is no evidence for $\neg p$. Call this move the sceptical strategy.

At first glance, the existence of the sceptical strategy may not seem very significant for deciding between contingentarianism and necessitarianism, or more generally for solving the modal problem. Indeed, the fact that the strategy is dialectically available does not make it successful, or even credibly successful. To see that, consider again the claim that there could be zombies. A purported lack of evidence that there are no zombies is barely a threat to this claim, because, surely, there is evidence that there are no zombies. And similar reasoning applies to other c-statements as well. Whatever views one may have

about zombies, it is surely undeniable that we have evidence that Socrates is human, or that Venus is a planet. Thus, even if one was able to show in this way that the second premise of (1) — and thus, (1) as a whole — is unsupported, they would not be able to attack (2) or 'Venus could have failed to be a planet' in the same way. More broadly and abstractly, the objection runs as follows. For the sceptical strategy to work, one needs to maintain that for any c-statement $\Diamond p \wedge \neg p$, there is no evidence that $\neg p$. But such a radical scepticism is simply false. For at least some value of p, there is evidence that $\neg p$. So, the sceptical strategy is ineffective for deciding between contingentarianism and necessitarianism (and, more generally, for solving the modal problem).

The objection can be resisted. Given the modal framework in which we are working, radical scepticism is much closer than it looks. The view that we have no evidence for (say) 'Venus is a planet' is easier to support than expected. Here is an overview of the argument for this claim.

Both the sceptic and their opponent should agree that we have evidence that Venus is a planet at some world w. But contrary to their opponent, the sceptic does not assume that w is such that if Venus is a planet at w, Venus is a planet. And so, contrary to their opponent, the sceptic does not assume that their evidence that Venus is a planet at w is also evidence that Venus is a planet. As it turns out, the sceptic is right to hold their judgment, and their opponent wrong to make the assumption. Unless we are assuming necessitarianism (which we obviously cannot do given the current dialectical framework), the fact that Venus is a planet at some world does not imply that Venus is a planet. Nothing in this argument relies on a specific feature of the claim 'Venus is a planet'. Thus, the argument can easily be generalized to warrant the kind of radical scepticism needed for a successful application of the sceptical strategy against contingentarianism.

37. Radical Scepticism

The friend of the sceptical strategy needs to embrace radical scepticism. That is, they need to maintain that we lack evidence for a large number of statements — including many statements that are normally thought to be supported by evidence. For example, they need to maintain that we have no evidence for 'there are no zombies', 'Venus is a planet', 'the Sun will rise tomorrow', and 'I do not have three hands'.

However, they need not maintain that we lack evidence for *all* statements. Their radical scepticism is not entirely radical.

First, remember that the sceptical strategy starts by granting that $\Diamond p$ is true. But in some cases, evidence warrants that $\Diamond p$ is false. Thus, in those cases, evidence also warrants that the corresponding c-statement $\Diamond p \wedge \neg p$ is false. Therefore, the sceptical strategy is simply not needed in those cases.

For example, consider the following statement:

(1) Venus is a planet and Venus is not a planet.

Given what we said about the truth conditions for modal statements (§13), we know that (1) is false at all worlds. Thus, we know that $\Diamond p$ is false when the value of p is (1). *A fortiori*, we know that the c-statement $\Diamond p \wedge \neg p$ is false when the value of p is (1). So, the sceptical strategy is unneeded here, and the friend of the strategy does not need to maintain that we lack evidence for the negation of (1). Reasoning parallel to the one just presented holds if (1) is replaced by such statements as 'some bachelor is married' and '$2 + 2 \neq 4$'.

Second, the friend of the sceptical strategy needs only worry about those statements that can be used to build a c-statement, i.e. about r-statements. For example, consider

(2) Venus is a moon.

Since (2) is an r-statement, the instance of $\Diamond p \wedge \neg p$ where the value of p is (2) is a c-statement. Therefore, the friend of the sceptical strategy maintains that we have no evidence for the negation of (2), i.e. no evidence that Venus is not a moon. By contrast, when the value of p is

(3) It is necessary for Venus to be a planet.

the corresponding instance of $\Diamond p \wedge \neg p$ is not a c-statement. Therefore, the friend of the sceptical strategy need not be a sceptic about the negation of (3). They may stay neutral on this matter.

Putting together the points of the previous paragraphs, we can precisely spell out the scope of the radical scepticism relevant to the sceptical strategy. For the sceptical strategy to succeed, the following must hold for all values of p:

If $\Diamond p \wedge \neg p$ is a c-statement and we are not warranted to conclude that $\Diamond p$ is false, then there is no evidence for $\neg p$.

Since the antecedent of this schema holds for such values of *p* as 'Venus is not a planet' and 'I have three hands', the friend of the sceptical strategy maintains that we have no evidence for the negation of those statements, i.e. no evidence that Venus is a planet and no evidence that I do not have three hands. On that point, they find themselves in the company of other radical sceptics, like sceptics about the external world. However, their scepticism arises for different reasons than those of the traditional sceptics.

The friend of the sceptical strategy is typically willing to grant the truth of whatever statement is supposed to be evidence that Venus is a planet (say). For example, suppose that one maintains that evidence for 'Venus is a planet' is provided by the fact that Venus appears as a large sphere-shaped object orbiting a star. Then, the friend of the sceptical strategy will readily grant that there is such a fact, i.e. that 'Venus appears as a large sphere-shaped object orbiting a star' is true. This raises two comments.

First, there is an exception to the above rule. If the statement supposed to be evidence that Venus is a planet *entails* that Venus is a planet, the sceptic will not readily accept that it is true. For example, suppose that the truth conditions for 'someone perceives that *p*' are defined in such a way that an instance of this schema is true only if the corresponding instance of *p* is true as well. Then, the sceptic will not readily accept that the statement 'someone perceives that Venus is a planet' is true.

Second, notice that the friend of the sceptical strategy has no trouble granting the truth of a statement *p*, even if *p* is an r-statement (so that $\Diamond p \wedge \neg p$ is a c-statement). For example, if one maintains that 'Venus is a planet' is (part of the) evidence for 'Venus is not a moon', the sceptic will readily grant that 'Venus is a planet' is true. This is not at odds with the sceptic's position. Indeed, the sceptic only maintains that we have no evidence that Venus is a planet. They do not also need to maintain that Venus is not a planet.

So, the friend of the sceptical strategy grants the truth of whatever statement is supposed to be evidence that Venus is a planet. In addition, they accept that this statement is evidence of something. More precisely, they claim that whatever is supposed to be evidence that Venus is a planet is evidence that Venus is a planet *at some world*, i.e. evidence for

(4) ‘Venus is a planet’ is true at some world.

Naturally, they also accept that purported evidence that Venus is a planet is evidence for

(5) It is possible for Venus to be a planet.

Up to this point, the friend of the sceptical strategy has said nothing incompatible with the view of their opponent. Opponents to the sceptical strategy will typically also accept that we have evidence for (4) and (5), although they might do it for somewhat different reasons than the sceptic. However, the sceptic and their opponent disagree about

(6) Venus is a planet.

According to the sceptic’s opponent, there is evidence for (6), e.g. the fact that Venus appears as a large sphere-shaped object orbiting a star. The sceptic rejects this assessment. According to them, whatever is supposed to be evidence for (6) is only evidence for (4) and, by extension, for (5). Put otherwise: according to the sceptic, the fact that Venus appears as a large sphere-shaped object orbiting a star is evidence that (6) is true *at some world* (and thus, that it is possible). However, according to the sceptic, this fact is *not* also evidence that (6) is true. And the fact that there is evidence that (6) is true at some world does not otherwise allow us to conclude that there is evidence that (6) is true.

Obviously, the sceptic’s point is not meant to be limited to (6). It applies as well to not — (6), to ‘the Sun will rise tomorrow’, to ‘I do not have three hands’, etc. More generally, the sceptic’s point applies to any statement $\neg p$ where the value of p is such that $\Diamond p \wedge \neg p$ is a c-statement and there is no decisive evidence against $\Diamond p$, as outlined above.

38. The Sceptical Argument

Here is how the sceptic argues for their view. As just discussed, let p be any statement such that $\Diamond p \wedge \neg p$ is a c-statement and we are not warranted to conclude that $\Diamond p$ is false. That is, let p be an r-statement such that we do not know that it is impossible. So, p may be ‘there are cube-shaped planets’, and ‘Venus is a moon’, but not ‘Venus is a planet and not a planet’. Then, the sceptic’s argument runs as follows.

(A1) If there is evidence for p, there is a world w s.t. we know that if p is true at w, p is true.

(A2) There is no such world.

(A3) So, there is no evidence for p.

The next two sections each discuss a premise of the sceptical argument. However, to better understand what the sceptic's position amounts to, it is worth considering first an analogous case. There is a view according to which things are distributed among various spatiotemporal systems. Call this the systems view. The most famous presentation and defence of this view can be found in Lewis (1986). There, the view is used — among other things — to provide an analysis of modality. But even though the systems view can be used to provide an analysis of modality, it is not itself a view about modality. Rather, it is an ontological and (to a certain extent) a metaphysical view: a view about what things there are, and about how these things are.

According to the systems view, there is a spatiotemporal system which includes you and me, as well as everything that is at any distance in space or in time of you or me. And, the view goes, there are also other spatiotemporal systems, which include things that are not at any distance (in space or in time) from you or me. For the analogy, we can stay neutral about what other systems there are exactly, and about what those other systems contain exactly. According to the systems view, these spatiotemporal systems are disjoint: nothing belongs to two different systems. In addition, these spatiotemporal systems are collectively exhaustive: everything belongs to a system. Thus, the systems partition reality: everything belongs to exactly one system.

Under the systems view, there is an obvious sense in which a statement can be said to be true or false at a system. An atomic r-statement attributing a property *r* to some individual *a* is true at a system *s* iff (i) *a* has *r* and (ii) *a* is in *s*. For example, 'Venus is a planet' is true at our system iff (i) Venus is a planet and (ii) Venus is in our system. Similarly for existential generalizations of atomic r-statements: 'there are cube-shaped planets' is true at our system iff there is something such that (i) it is a cube-shaped planet and (ii) it is in our system.

The systems view has some interesting epistemological consequences. If it is right, some claims that are usually thought to be supported by evidence turn out to be unsupported. For example, consider

(1) There are no cube-shaped planets.

If the systems view is right, we have no evidence that (1) is true, only evidence that (1) is true at our system. That is, any purported evidence for (1) turns out on closer inspection to be evidence for another claim, namely that there are no cube-shaped planets *in our system*.

To see why this is so, notice that the purported evidence for (1) is our best theory about the forces acting on (very massive) objects. However, if the systems view is right, this theory should really be taken as a theory regarding forces acting on objects in our spatiotemporal system. Indeed, the theory in question (as is typically the case for a theory based on empirical data) is supposed to be a theory about the observable universe. But since something is observable only if its observer is at some distance from it, the observable universe is clearly (a part of) our spatiotemporal system. So, the theory is really a theory about our spatiotemporal system. More precisely, it is a theory about the forces acting on objects in our spatiotemporal system. But if so, the theory is not evidence for (1). A theory about a single spatiotemporal system is no evidence for a claim about *all* spatiotemporal systems — just as a perception that there are no cats in my office is no evidence that there are no cats; only that there are no cats *in my office*.

So, under the systems view, empirical observation will not provide us with evidence for (1). Nor will it provide us with evidence against (1). But this alone is not enough to conclude that we should suspend our judgment regarding (1). We must consider other ways that we can potentially gain evidence for or against this sentence.

Since we can only observe a single system, we can hardly gain evidence for (1) by induction. Perhaps the fact that I have never seen a blue swan anywhere is rather strong evidence for the claim that there are no blue swans. But if the fact that there are no blue swans in front of me right now is evidence for this claim at all, it is only very weak evidence.

It may be suggested that if we know (or assume) that the systems must satisfy certain conditions, we can gain evidence for or against (1) indirectly. For example, assume that the only systems are those in which massive objects behave in the same way as the massive objects in our system. (This may be the case if the only systems are those in which the laws of nature are the same as in our system.) Given this assumption, our best theory about the forces acting on massive objects in our system is a theory about the forces acting on all massive objects. And so, the theory is evidence that (1) is true, not just evidence that (1) is true at our system. Or assume that there is at least one system corresponding to every imaginable scenario. Given this assumption, the fact that I am able to imagine a cube-shaped planet is evidence that there are cube-shaped planets, i.e. evidence against (1).

But, of course, nothing forces us to assume that systems resemble ours when it comes to massive objects or to assume that there is a system for every imaginable scenario. As I have introduced it, the systems view is just the claim that things — whatever they are exactly — are distributed among spatiotemporal systems. In itself, the view is neutral about what things there are and how these things are distributed. Therefore, from the standpoint of the systems view alone, (1) (just as its negation) does indeed seem to be unsupported.

So, under the systems view, there are statements such that we have evidence that they are true at our system, but no evidence that they are true. Of course, this does not hold for every statement. In this regard, (1) is a bit of a special case. For example, consider

(2) There are planets or there are no planets.

Under the systems view, we have evidence that (2) is true at our system. But we also have evidence that (2) is true. This is because the strongest evidence that (2) is true at our system — namely, the well-known facts regarding the behaviour of the disjunction and negation operators — is also evidence that (2) is true. This is in stark contrast with the above, where evidence that (1) is true at our system fails to also support (1).

Or consider

(3) There are planets.

Under the systems view, we do have evidence that (3) is true at our system, i.e. evidence that there are planets in our system. But contrary to what is the case for (1), we also have evidence that (3) is true. Yet, contrary to what is the case for (2), there is a crucial difference between whatever evidence we have that (3) is true and whatever evidence we have that (3) is true at our system. Indeed, the former evidence is less fundamental than the latter, in an important sense of 'fundamental'.

When we observe celestial bodies, we notice that some of them have interesting properties: they orbit a star, they are massive enough to be in hydrostatic equilibrium, and they have no objects of a similar mass near their orbit. These observations provide evidence for the claim that there are planets in our system, i.e. evidence that (3) is true at our system. In addition, these observations also play an important role in our evidence that there are planets, i.e. in our evidence for (3). But these observations alone are not enough to support (3). Indeed, evidence for (3) is really provided by these observations together with the principle that if (3) is true at our system, (3) is true. This latter implication is key to explaining why, under the systems view, we have evidence for (3) but no evidence for (1). Indeed, there is no similar implication regarding (1): that there are no cube-shaped planets in our system does not imply that there are no cube-shaped planets.

The epistemological consequences of the systems view can be summarized thus. Consider the following schematic argument.

(B1) If there is evidence for p, there is a system s such that we know that if p is true at s, p is true.

(B2) There is no such system.

(B3) So, there is no evidence for p.

This argument is the argument (A1)–(A3), except applied to systems rather than to worlds. The first premise stems from the idea just mentioned according to which evidence that p is less fundamental than evidence that p is true at some system. What is gained first is evidence that p is true at some system s. If there is also evidence that p, this evidence is only gained derivatively, through the knowledge that if p is true at s, p is true. This premise does not plausibly hold when the value of p is (2). In this case, whatever is evidence that (2) is true at s is also evidence that (2) is true. But the premise does hold when

p is (1) or (3). In those cases, whatever evidence there is that p is true at s is not quite enough to support p.

The second premise holds when the value of p is (1). Indeed, there is no system such that we know that if there are no cube-shaped planets in this system, there are no cube-shaped planets. By contrast, the premise does not hold when p is (3). Since the systems partition reality, we know that every system is such that if there is a planet in it, there is a planet. This is what explains that, under the systems view, we should be sceptical about (1), but not about (3).

How is all this relevant to our discussion of the sceptical strategy? As it turns out, the many spatiotemporal systems postulated by the proponent of the systems view have a lot in common with the many worlds of the contingentarianist. In particular, just as a statement is said to be true at some systems and false at others, it is said to be true at some worlds and false at others.

(Of course, this similarity is not a coincidence. As already mentioned, one of the main motivations behind the development of the systems view was to provide an analysis of modal discourse, by letting systems play the role of worlds. Very roughly, the idea is to start from the systems view and add to it the claim that there is one system for every possible way things are. So, assuming that cube-shaped planets are possible, there is at least one system containing a cube-shaped planet. The resulting view is known as modal realism in the literature. Notice that although modal realism requires the systems view, these are two different claims. As I have introduced it, the systems view is simply the claim that things are distributed among various spatiotemporal systems. By contrast, modal realism says that things are distributed among various spatiotemporal systems *according to the ways things possibly are*. Thus, while the systems view is neutral on this point, modal realism puts some constraints on what systems there are. In that sense, modal realism is similar to the view mentioned earlier that there are only systems in which laws of nature are the same as in our system, or to the view that there is a system for every imaginable scenario.)

So, worlds resemble systems. Assuming there are many systems, a statement can be true at some systems and not at others. Similarly, assuming there are many worlds, a statement can be true at some worlds and not at others. Yet, there is also a crucial difference between systems and worlds. In many (although,

as we have seen, not all) cases, it follows from the fact that a statement is true at a system that this statement is true. For example, if 'there are planets' is true at some system, one can conclude that 'there are planets' is true. But, I argue, this does not hold when it comes to worlds. From the claim that 'there are planets' is true at some world, one cannot conclude that 'there are planets' is true. This is how radical scepticism enters the picture, according to the friend of the sceptical strategy.

39. Derivative Evidence

I now discuss the first premise of the sceptical argument,

(A1) If there is evidence for p, there is a world w s.t. we know that if p is true at w, p is true.

This premise stems from the idea that evidence that p is true at w is more fundamental than evidence that p. If we have evidence that p, this evidence is gained derivatively from our knowledge that p is true at w. For example, assume (*contra* the sceptic) that there is evidence that Venus is a planet and that my seeing that Venus is a large sphere-shaped object orbiting a star is at least part of this evidence. According to (A1), my seeing is primarily evidence that Venus is a planet at some world, namely at a world in which I see that Venus is a large sphere-shaped object, etc. It is only with the knowledge that this world mirrors reality (at least where Venus is concerned) that I have evidence that Venus is a planet. (Note that here and in what follows, I am not assuming that seeing – or observing – is factive, i.e. I do not assume that if I see that p, then p is the case. If you prefer, you may replace 'see that p' with 'have a visual that p' or another similar expression which is not naturally read as expressing factivity.)

Why trust that evidence that p is true at w is more primitive than evidence that p? To begin, notice that a similar phenomenon occurs in other cases. We already saw an example of this with the systems view, but this happens in less exotic cases as well. Suppose that an astronomer points their telescope to the night sky and observes a planet orbiting a distant star. Their observing the planet, let us assume, is evidence that there is a planet. But it is also evidence that there is a planet at a particular location, namely around a particular distant star. And here, the latter evidence is more primitive than the former: the astronomer's observation is evidence that there is a planet *because* it is evidence that there is a planet at a particular location — not the other way around.

More generally, the idea is thus. When it comes to supporting statements that are valid values for p in (A1)–(A3), the raw data — the data produced by seeing, hearing, measuring, intuiting, etc. — is always produced in some context. Because of this, this raw data is evidence about what is the case in the given context — at a place, time, system, world, etc. This, of course, is not to say that we cannot gain evidence about what is the case outside of a given context. But doing so requires some further processing. We must decide whether it is safe to ignore the context, i.e. whether we can safely conclude the decontextualized claim from the contextual one. For example, we must decide whether we can conclude 'there is a planet' from 'there is a planet *around a distant star*'. (In this case, the answer is affirmative.) Similarly, we must decide whether we can conclude 'there is no cube-shaped planet' from 'there is no cube-shaped planet *in our system*'. (In this case, the answer is negative.) It is in this sense that evidence for the contextualized claim is more fundamental than evidence for the decontextualized one. And what goes for contexts in general goes for worlds in particular: evidence that p is true at w is more fundamental than evidence that p.

There is another reason to take evidence that p is true at w as more primitive. By doing so, we can account for some remarkable links between evidence for what is the case and evidence for what is possible. Assume (*contra* the necessitarian) that I could have seen that Venus is cube-shaped, even though, of course, I never actually did see this. Furthermore, assume that it is possible for this seeing to be regularly produced, e.g. by light reflecting off the cube-shaped Venus passing through the lens of a telescope and hitting my auricular nerves.

My merely possible seeing, I claim, is evidence that it is possible for Venus to be cube-shaped (see §24). Thus, there is a parallel between the actual case and the merely possible one. The statement

(1) I see (under normal circumstances) that the Moon is sphere-shaped

(if it is true) is evidence for

(2) The Moon is sphere-shaped.

Similarly, the statement

(3) It is possible for me to see (under normal circumstances) that Venus is cube-shaped

(if it is true) is evidence for

(4) It is possible that Venus is cube-shaped.

At this point, one may worry that this makes evidence for (4) (and so, for a mere possibility) too easily accessible. This worry is unwarranted. We can only conclude that there is evidence for (4) *if* (3) is true. But there are no more reasons to maintain (3) than there are reasons to maintain (4).

Even though (3) (if true) is evidence for (4), it is not evidence for

(5) Venus is cube-shaped.

Why is that? Here, it is natural to reply along the following lines: while a merely possible seeing that p is sometimes evidence that $\Diamond p$, it is never evidence that p. However, this answer alone will not do. Sometimes, a merely possible seeing that p *is* evidence that p.

Consider

(6) It is possible for me to see (under normal circumstances) that Venus is sphere-shaped.

Having never looked at Venus through a telescope or been close enough to it to see its shape with the naked eye, I have actually never seen that Venus is sphere-shaped. (Other people have, of course. But this is irrelevant to the argument). So, like (3), (6) expresses a mere possibility. And just like (3) (if true) is evidence for (4), (6) (if true) is evidence for

(7) It is possible that Venus is sphere-shaped.

So far, there is a perfect symmetry between (3) and (6). But as we previously asked whether (3) (if true) is evidence for (5), we can ask whether (6) (if true) is evidence for

(8) Venus is sphere-shaped.

And here, the symmetry is broken. While the answer to the former question is negative, the answer to the latter question is positive. Assuming there is such a thing as my regularly produced merely possible seeing that Venus is sphere-shaped, this seeing is evidence that Venus is sphere-shaped. At least, it is if – *contra* the friend of the sceptical argument – I also know that an actual seeing that Venus is sphere-shaped is evidence that Venus is sphere-shaped. Suppose that I know that, under certain conditions (e.g.

by looking at the right time of the day through a well-calibrated telescope pointing at Venus), someone seeing that Venus is sphere-shaped gains evidence that Venus is sphere-shaped. In addition, suppose that I know that it is possible for me to see that Venus is sphere-shaped under exactly those conditions. Then, I already have evidence that Venus is sphere-shaped. I do not need to actually see that Venus is sphere-shaped (although doing so will presumably give me stronger evidence for this claim).

One may worry that we have made evidence for (8) too easy to come by. This worry is unwarranted. Remember (§9) that the task of finding a statement e that is evidence for p can be divided into two steps. First, show that if e is true, it is evidence that p. Second, show that e is true. What I have said here is relevant to the first step: I have argued that if (6) is true, it is evidence for (8). But this hardly makes evidence for (8) too accessible, because it is not particularly easy to show that (6) is in fact true.

My merely possible seeing that Venus is sphere-shaped is evidence that Venus is sphere-shaped, but merely possible seeing that Venus is cube-shaped is not evidence that Venus is cube-shaped. What explains this difference? It is not explained by a difference in the intrinsic features of the seeings, or in the way the two seeings are produced, for the seeings are very similar to each other in those respects. It is not very well explained by the fact that Venus is actually sphere-shaped and not cube-shaped, because we sometimes have evidence for false statements. While the fact that Venus is sphere-shaped and not cube-shaped is obviously part of the explanation, it cannot be the whole explanation.

Rather, the explanation goes like this. To start, notice that if my (regularly produced) merely possible seeing that Venus is cube-shaped is evidence that Venus could be cube-shaped, then there is a world, call it w_1, at which (i) I see that Venus is cube-shaped and (ii) Venus is cube-shaped. Indeed, if there were no such world, my merely possible seeing would not be produced by light reflecting off cube-shaped Venus (say), but by some other means. And so, it would not be regularly produced.

Moreover, notice that my merely possible seeing that Venus is cube-shaped is not only evidence that Venus could be cube-shaped. It is also evidence that Venus is cube-shaped at some particular world, namely at the world at which I see that Venus is cube-shaped, i.e. at w_1. That is, my merely possible seeing is evidence for 'Venus is cube-shaped at w_1'.

By applying parallel reasoning to the case of my merely possible seeing that Venus is sphere-shaped, we conclude that there is a world, call it w_2, at which (i) I see that Venus is sphere-shaped and (ii) Venus is sphere-shaped. And we know that my merely possible seeing that Venus is sphere-shaped is evidence that Venus is sphere-shaped at w_2.

This is key to explaining the difference between the evidential role of my two seeings. As we have just seen, both of my merely possible seeings are evidence that their content is true at some world. But my merely possible seeing that Venus is sphere-shaped is evidence at a right world, while the merely possible seeing that Venus is cube-shaped is evidence at a wrong world. By 'a right world', I mean a world which resembles what is the case, at least as far as the shape of Venus is concerned. Since (ignoring the sceptic qualms for a moment), we know that Venus is sphere-shaped, we know that w_2 is such a world. This is why we can be confident that if (6) is true, it is evidence for (8). Any world at which I have a (regularly produced) seeing that Venus is sphere-shaped is a world that resembles reality, where the shape of Venus is concerned. By contrast, a world at which I have a (regularly produced) seeing that Venus is cube-shaped is not a world that resembles reality, so (3) is not evidence for (5).

Of course, the point is not limited to seeings that Venus has a certain shape, or even to seeings in general. Let p be a valid value for the argument (A1)–(A3), i.e. an r-statement such that we do not know that $\Diamond p$ is false. Ignoring the sceptic qualms for a moment, let e be a statement such that it is evidence for p if it is true. Finally, suppose (*contra* the necessitarian) that e is contingently false, i.e. that $\Diamond e \wedge \neg e$. Given this last claim, '$\Diamond e$' is true. Thus, e is true at some world w.

The idea, then, is that for some values of e and p, e being true at w is not only evidence that p is true at w; it is also evidence that p is true. However, this does not hold for every value of e and p: sometimes, e being true at w is evidence that p is true at w, but not evidence that p is true. What explains the difference between the two types of cases is the fact that we sometimes — but not always — know that if p is true at w, p is true.

This supports the first premise of the sceptical argument. In the setting just described — a setting in which e is contingently false — what comes first is evidence that p is true at w. There is evidence that

p because (i) there is evidence that *p* at *w* and (ii) we know that if *p* is true at *w*, *p* is true. But if this holds in a setting where *e* is false, there is little reason to deny that it also holds in a setting where *e* is true. Assume that my actual seeing that the Moon is sphere-shaped is evidence that the Moon is sphere-shaped. Then, this seeing is also evidence that the Moon is sphere-shaped at some world, more precisely at a world which mirrors reality (where the shape of the Moon is concerned). Now, we just saw that my merely possible seeing of Venus is fundamentally evidence that Venus is sphere-shaped at some world, and that evidence that Venus is sphere-shaped is only gained derivatively, by knowing that the world in question mirrors reality. Why believe that the explanation is different when it comes to my actual seeing that the Moon is sphere-shaped? I see no good reason to do so.

So, it appears that my seeing is evidence that the Moon is sphere-shaped only if it is evidence that the moon is sphere-shaped at some world and we know that this world mirrors reality. More generally, it appears that there is evidence that *p* only if there is evidence that *p* is true at some world *w* and it is known that if *p* is true at *w*, *p* is true. So, we have here another reason to maintain the first premise of the sceptical argument.

40. Actuality and Knowledge

Let us now turn our attention to the second premise of the sceptical argument:

(A2) There is no world *w* such that we know that if *p* is true at *w*, *p* is true.

The central idea behind this premise is that knowledge of what is going on at one world is not knowledge of what is going on. Even if I know that Venus is sphere-shaped at some world *w*, I cannot conclude that Venus is sphere-shaped. Not knowing what worlds there are besides *w* and not knowing how these worlds are, I cannot know whether *w* mirrors reality as far as the shape of Venus is concerned.

We saw a similar behaviour in the case of systems. I know that there are no cube-shaped planets at some system *s* (namely, at the system we are in). But, not knowing what other systems there are and what things are in those systems, I cannot know whether *s* mirrors reality as far as the absence of cube-shaped planets is concerned.

We also saw that, for systems, this does not remain the case if we replace ‘there are no cube-shaped planets’ with any other valid value of p. Indeed, while we do not know what systems there are besides our own and what things are in those systems, we still know that the systems partitions reality. Thus, we know that Venus (say) can only be in a single system. So, a system containing Venus does represent reality as far as Venus is concerned. Therefore, there is a system such that I know that if Venus is sphere-shaped at it, Venus is sphere-shaped, namely the system containing Venus (which also happens to be the system we are in). But no similar reasoning is permitted in the case of worlds. In particular, we certainly cannot assume that the worlds partition reality, as systems do.

At this point, one may object along the following lines. Indeed, one cannot know that p simply by knowing that p is true at some world. But the world w such that we have evidence that p is true at w is not just any world. It is the actual world. And surely,

(1) We know that if p is true at the actual world, p is true.

But from (1), it follows that

(2) There is a world w such that we know that if p is true at w, p is true.

And (2) directly contradicts (A2).

This objection only goes through if the phrase ‘the actual world’ in (1) picks out a world in particular. But it is not clear that it does. In our discussion of actuality (§16), we saw that the word ‘actual’ is often used as a rhetorical device, to emphasize the difference between what is the case and what is merely possible. When it is used in that way, the word can be dropped without changing the meaning of the expression. For example, ‘the actual moon of Earth’ is synonymous with ‘the moon of Earth’: both expressions refer to the same object. However, it is clearly not how ‘actual’ should be understood in the above objection. Worlds, remember (§13), are indices. More precisely, they are unique identifiers for functions mapping properties to sets of things, just like IBANs are unique identifiers for bank accounts. In that sense, it is clear that when we are talking about worlds, we are only talking about worlds that are, not about worlds that could be. And so, every world is actual if ‘actual’ is read as in ‘the actual moon of Earth’. If so, the phrase ‘the actual world’ fails to pick out a single world and the above objection does

not go through. (To be precise, the expression fails to pick out a single world if there are multiple worlds, i.e. if necessitarianism is false. This indicates that the sceptical argument holds only if contingentarianism is true. More on this below.)

One may suggest that in (1), 'the actual world' should be read as synonymous with 'this world', 'our world' or 'the world at which we are'. After all, similar expressions are sometimes used in this way. For example, in the context of the systems view, the phrase 'the actual system' is naturally taken to denote our system, the system you and I belong to. However, this does not guarantee that 'the actual world' picks out a single world. Indeed, an indexical expression such as 'our world' only manages to pick out a world in particular if we are at a single world. But we cannot assume that it is so. Contrary to systems, we do not know whether worlds partition reality. And so, even if we know that we are at some world w, we cannot conclude from this alone that we are only at w.

At this point, one may protest that we can safely *assume* that we are at a single world, even if we cannot show that it is so. I object. Assuming that we are only at a single world is inappropriate given the current dialectical setting, because it would force us to assume a partial answer to the modal question. More precisely, by doing so, we concede too much to the necessitarian.

To see why, notice first that it is natural to maintain that if something has a property at some world, then this thing is at that world. That is, for every world w, every individual a and every property r: if a has r at w, then a is at w. Equivalently:

(3) If $a \in f_w(r)$, then $(a, a) \in f_w(\textit{being identical to})$.

Note that I do not claim that one *must* accept this principle. Nothing I have said about the identity relation (§14) presupposes that (3) is true. I have left it open that there are worlds at which a is not identical to itself, and so not identical to anything, i.e. worlds at which a is not. *A fortiori*, I leave it open that there are worlds at which a is not, but still has some property. Yet, I think that many will want to maintain (3). But now, if we assume that a is at a single world, it follows from (3) that

(4) If a lacks r, it is necessary that a lacks r.

For example, assuming that I am at a single world, it follows from (3) that it is necessary that I am not standing if I am not standing. This, I think, is a consequence that few contingentarianists will readily accept.

(To see how (4) follows from (3) and the assumption that a is at a single world, assume for *reductio* that (i) a lacks r and (ii) it is possible that a has r. Since everything is, a is. Thus, given (i), a lacks r and a is. And since $p \rightarrow \Diamond p$, it is possible that a lacks r and a is. So, there is a world w_1 such that $a \notin f_{w_1}(r)$ and a is at w_1. Now, given (ii) and (3), there is a world w_2 such that $a \in f_{w_2}(r)$ and a is at w_2. But since a is at w_1 and a is at w_2, the assumption that a is at a single world entails that $w_1 = w_2$. Therefore, there is a w s.t. $a \notin f_w(r) \wedge a \in f_w(r)$. Contradiction. Similar reasoning will show that if a has r, it is necessary that a has r if a is.)

A more promising way to ensure that 'the actual world' in (1) picks out a single world is to *stipulate* the meaning of this expression, in much the same way that one may stipulate that 'a natural number' means 'an integer equals or greater than 0'. If one goes this route, a natural suggestion for this stipulative definition is the following:

(5) The actual world is the world w_0 such that for any statement p, if p is true at w_0, p is true.

According to (5), the function f_{w_0} indexed by the actual world is the function which maps each property to the set of things that actually have this property, i.e. to the set of actual instances of this property So, f_{w_0} maps the property *being a planet* to the set of planets, the relation *being in orbit of* to all pairs x, y such that x is in orbit around y, etc. Notice that given this definition and the fact that $p \rightarrow \Diamond p$, truth at the actual world is equivalent to truth *simpliciter*: a statement is true at the actual world iff it is true.

If 'the actual world' is understood in this way, we can be sure that the phrase does not denote more than one world. Indeed, there is only one function that maps every property to the set of its actual instances and so, there is at most one world indexing this function (since no function is indexed by more than one world). But here, it becomes suspicious that 'the actual world' denotes any world at all. Indeed, it is unclear whether there is in fact such a world as w_0. To put the point otherwise: it is unclear whether the

function mapping every property to the set of its actual instances is a member of $\mathcal{F}_W$, i.e. is one of the functions which represent what is possible.

As we already suggested (§16), one is forced to maintain that there is a world such as w_0 If there is a statement that truly and completely describes every property (and relation) of everything. For in this case, given that $p \rightarrow \Diamond p$, there must be a world at which everything has the property it actually has. That is, the function mapping every property to the set of its actual instances must belong to $\mathcal{F}_W$. But we do not know whether there is such a statement and we are thus under no pressure to accept the existence of w_0.

41. Avoiding Scepticism

At this point, one will perhaps argue that a radical scepticism of the kind advocated by the proponent of the sceptical strategy is so incredible that it must be false. There *is* evidence that (say) I have two hands. This is an unquestionable fact, one that any serious philosophical inquiry should hold as a primitive truth. Even if it turns out that we are unable to support (let alone decisively prove) that radical scepticism is false, we should still dogmatically reject radical scepticism. But if so, something must be wrong with the sceptical argument presented in the previous sections. The point is not particularly original. Similar objections have been raised against other varieties of radical scepticism (Dworkin, 1996; Moore, 1939).

I have sympathies for this line of thought. While I would perhaps not go so far as to claim that radical scepticism must be false, I readily grant that it is a very unattractive view, one that signals something has gone awry. If an argument leads us to the edge of radical scepticism, we should make sure that there are absolutely no issues with the argument before we jump into the abyss. And where the sceptical argument presented in the previous sections is concerned, I fully agree with the objector: there *is* something wrong with this argument. Thus, we should not embrace radical scepticism (or at least, we should not embrace it because of this argument).

Fortunately, in this case, the source of the trouble is easy to locate: it lies in the implicit contingentarianist assumption that there is more than one world. Suppose that there is only a single world (so that necessitarianism is true). Then, truth-at-a-world is just truth. So, in this case, from the

fact that *p* is true at some world *w*, it follows that *p* is true — just as, from the fact that there is a planet at some location, it follows that there is a planet. And so, if there is evidence that *p* is true at *w* is evidence that *p* is true — just as if there is evidence that there is a planet at some location, there is evidence that there is a planet. Therefore, radical scepticism is avoided.

This shows that the sceptical strategy is not only a way to undermine support for any c-statement — *a fortiori*, a way to show that contingentarianism is unsubstantiated. Assuming that radical scepticism is indeed problematic and undesirable, the strategy is also evidence for the negation of contingentarianism, i.e. for necessitarianism.

In this chapter, I have discussed another way we can conclude that contingentarianism is unsubstantiated. If the contingentarianist is right and there are multiple possible worlds, we can gain evidence that a statement p is true at some world (and so, that p is possible), but not that this statement is true. I think that this fact is generally overlooked, because it is assumed that the world at which we have evidence that p is the actual world. But this is not a satisfying reply: as I have argued, the phrase 'the actual world' fails to pick a single world when it is used in that way.

VIII. Ordinary Modal Discourse

My aim in this chapter is to attack the *prima facie* appealing view that ordinary modal discourse is committed to contingentarianism. I agree that as part of ordinary modal discourse, we routinely assert and assent to statements apparently claiming that things could have been otherwise. However, I argue that when such statements appear in ordinary discourse, they have at least one perfectly natural reading under which they are not c-statements. Since nothing in ordinary discourse tells us whether the statement should or should not be read in this way, ordinary discourse itself is not committed to contingentarianism.

I introduce the view according to which ordinary modal discourse is committed to contingentarianism and the issues this view raises for the necessitarian (§42). I then discuss quantifier restriction in ordinary discourse, pointing out that the range of quantifiers in ordinary discourse is sometimes sensitive to the syntactical context in which this quantifier appears (§43). From there, I develop my argument that ordinary discourse is never committed to contingentarianism. As part of this argument, I discuss statements in which the quantifier is apparently restricted (§44), statements in which the quantifier is apparently unrestricted (§45), and statements that do not contain a quantifier (§46).

42. Contingentarianism in Ordinary Discourse

We saw (§18) that contingentarianism is a standard view within contemporary philosophy. Is contingentarianism a standard view outside philosophy as well? In particular, is ordinary modal thought and ordinary modal discourse committed to the view that things could have been otherwise? In short: is commonsense contingentarianist?

'Yes' is the obvious answer. After all, we routinely agree with statements claiming that things could be otherwise. For example, consider the following three sentences:

(1) I could have chosen to pursue a career in engineering, rather than in philosophy.

(2) Two more people could have easily sat at this table.

(3) All team members resigned, but it was not necessary that they did.

We assert and assent to sentences such as these as part of our ordinary modal discourse and ordinary modal thought. And these sentences claim that things could be otherwise, i.e. they are equivalent to an instance of the schema $\Diamond p \wedge \neg p$ where the value of p is an r-statement, i.e. they are c-statements. Similar examples are easy to come by. Ordinary modal discourse is full of commitments to contingentarianism.

Or so it seems. As I have pointed out (§11), it is sometimes the case that a sentence looks like a claim that things could have been otherwise, but is in fact not a c-statement. In particular, we saw that in some contexts, an instance of 'it could be that p' should not be read as a c-statement, but rather as expressing a doubt, an absence of knowledge, or a counterfactual claim. Of course, this alone hardly shows that ordinary discourse is not committed to contingentarianism. Even if a sentence can be read in that way in some contexts, this is typically not the case in all contexts. Moreover, not all sentences apparently claiming that things could have been otherwise are appropriately read as expressing an epistemic possibility or a counterfactual. In particular, sentences (1)–(3) do not appear to be well suited for this.

Yet, the fact that some sentences apparently claiming that things could be otherwise can instead be read in another way should prompt us to be cautious here. Even though sentences (1)–(3) are not well read as expressing an epistemic possibility or a counterfactual, we should not be too quick to conclude that they are c-statements. In the next sections, I show that when sentences such as (1)–(3) appear as part of ordinary (as opposed to philosophical) discourse, they often have at least one or two perfectly acceptable readings in which they are not c-statements. In itself, ordinary modal discourse provides no clue on whether these sentences should be read as c-statement or not, i.e. ordinary discourse is inherently ambiguous on this point. So, ordinary modal discourse is not committed to contingentarianism, contrary to what may seem at first glance.

Why am I trying to make necessitarianism compatible with ordinary modal discourse? Why don't I simply bite the bullet and maintain that ordinary modal discourse is radically misguided (or at least, that

it is if I am right and necessitarianism is true)? One may suspect that the sole motivation here is the principle that when doing philosophy (or metaphysics in particular), we should always stick as closely as possible to our ordinary ways of speaking and thinking. But, the thought goes, this principle is nothing more than a methodological prejudice, one that we ought to abandon.

I am sympathetic to this line of thought. At any rate, I certainly do not believe that our ordinary talk has any sort of special epistemic status when it comes to establishing the truth of c-statements. If ordinary modal discourse is the cost required by necessitarianism, it is a cost I am willing to pay. However, the point of this chapter is precisely that the antecedent of the previous conditional is false. And this is just as well, because if ordinary discourse is not too high a cost to pay, it remains a relatively steep cost nonetheless. There are at least three reasons why it is worth showing that our routine modal talk is compatible with necessitarianism.

First, doing so undercuts a potential source of support for contingentarianism. Indeed, the fact that a view is implied by ordinary language is sometimes taken as evidence for this view. Even if this is right, we would still have no evidence for contingentarianism here. Second, in exposing and defending their view, necessitarians will themselves make statements apparently claiming that things could have been otherwise. It is therefore important for them to show that such statements do not imply contingentarianism.

Third, and perhaps more importantly, showing that common sense is not contingentarianist makes necessitarianism easier to believe, i.e. more credible. Necessitarianism, I readily grant, is hardly believable. At any rate, I have a hard time believing that no c-statement is true. This is because I believe in statements such as (1)–(3), which look to be c-statements. However, if it can be shown that these statements are not c-statements — that they are not only or even better read as claiming that things could be otherwise — it becomes clear that their truth is not incompatible with that of necessitarianism, which in turn makes necessitarianism more easily believable. Of course, one should not overstate the importance of credibility. Our task as far as the modal problem is concerned is to determine what the set of true c-statements is. Whether it is easy or hard to believe that some set is indeed the set of true c-statements is largely irrelevant to this task — unless perhaps it is assumed that credibility is a mark of

truth. Yet, it is often desirable that a solution is credible, if only because it generally makes this solution easier to grasp.

This chapter is based on the claim that we routinely assert and assent to statements apparently saying that things could be otherwise, statements such as (1)–(3). I must confess that I only have anecdotal evidence to present in favour of this claim, i.e. only things that I have heard or read in various contexts, but never taken the time to properly record and analyse. Some may frown at that. 'Anecdotal evidence is no evidence at all', they will say. Perhaps this is right. But in any case, the claim can simply be treated as an assumption. If, surprisingly, this assumption turns out to be false, this will only reinforce the main point of this chapter, namely that necessitarianism is not incompatible with ordinary modal discourse and ordinary modal thought.

This chapter relies heavily on the notion of ordinary discourse (and ordinary thought). I have no precise criterion to distinguish between ordinary and non-ordinary discourse. Everyday talk, outside of philosophical (or, more broadly, theoretical) contexts, is a paradigmatic example of what I am trying to capture with the notion of ordinary discourse. A philosophical theory attempting to answer (part of) the ontological question 'what is there?' is a paradigmatic example of non-ordinary discourse. I readily agree that some cases may be difficult to classify as either ordinary or non-ordinary discourse. Yet, these cases do not affect the argument in this chapter in a significant way.

43. Quantifier Restriction

To show that ordinary modal discourse is not committed to contingentarianism, I argue that statements apparently claiming that things could have been otherwise can be naturally read in a way that does not imply contingentarianism. The first step in this argument is to recognize that within ordinary (modal) discourse, quantification is often restricted.

When a sentence is asserted as part of ordinary discourse, it is often both natural and charitable to take the quantifiers in the sentence as restricted. For example, in most contexts, 'there are only eight planets' likely means that there are only eight planets *in our solar system*. That is, the quantifier in this sentence is restricted to the set of objects in our solar system, or, at least, to some set that excludes exoplanets.

Similar examples of quantifier restriction in ordinary discourse are easy to come by. It is worth keeping in mind that the quantifier restriction is often implicit. Indeed, in ordinary discourse, the intended domain of quantification is seldom explicitly declared. Typically, one does not need to say 'I am only talking about things in our solar system' when one maintains that there are only eight planets.

Crucially, the range D of the quantifiers in a single sentence may vary depending on the context in which the sentence appears. Most obviously, the context of production plays an important role in defining D. For example, consider 'some employees were laid off'. When the sentence is produced by a department manager reporting to their CEO, the domain of quantification will typically be different from when the sentence is produced by the CEO reporting to their board of directors.

Less obvious, but more relevant for our purposes, D may also depend on the syntactical context of the sentence. In particular, the range of the quantifiers in a sentence will often vary depending on whether the sentence is in the scope of a negation operator. Suppose that an astrophysicist versed in the study of exoplanets (and who therefore knows that it is highly plausible that there are habitable planets somewhere in the observable universe) produces the following sentence:

(1) Some planet other than Earth is habitable.

Assuming that the domain of quantification has not been otherwise fixed by the context of production (e.g. that the discussion is not about things in our solar system), it is natural to read this sentence as meaning that some planet beyond our solar system is habitable. That is, it is natural to read the quantifier in (1) as ranging over a set containing exoplanets.

But now, suppose that instead of (1), the astrophysicist had produced the following sentence, which is just the negation of (1):

(2) No planet other than Earth is habitable.

In that case, it is natural to read (2) as meaning that except Earth, no planet *in our solar system* is habitable. That is, it is natural to take the quantifier in (2) as ranging only over the set of objects in our solar system — just as is the case for 'there are only eight planets'. The reason this reading is natural is because it is the most charitable way to interpret the sentence in this context. Surely, the astrophysicist

is aware that, given what we know regarding the number of planets in the observable universe and the features required for a planet to be habitable, there is strong evidence that at least some planet other than Earth is habitable. To strengthen the case, we can even suppose that we previously heard the astrophysicist express the view that some exoplanet is habitable.

This example illustrates that the range of the quantifiers in a sentence may be affected by whether this sentence is in the scope of a negation operator or not. The quantifier in a sentence may not have the same range if this sentence is asserted than if this sentence is denied, even if all contextual parameters are kept the same. This is an example of sensitivity to the syntactical context.

Sensitivity to the syntactical context assumes that the range of the quantifier has not already been fixed, by the context in which the sentence is produced or by some other means. In some cases, it will be clear that the intended domain of quantification is (say) the set of objects in the Solar System. In those cases, the sensitivity to the syntactical context is neutralized. The quantifiers in (1) and (2) will have the same range, independent of whether they appear in the scope of a negation operator or not. My claim is that the range of quantifiers is at least sometimes sensitive to the syntactical context in which the sentence appears. I do not claim that this sensitivity supersedes (or is even on par with) the sensitivity to the context of production.

44. Restricted Quantification

With this in mind, we now move to the main part of the argument. I maintain that when a sentence apparently claiming that things could be otherwise is asserted within ordinary modal discourse, the quantifiers it contains are restricted, often implicitly and in a subtle manner. Because of this, it turns out that the sentence has at least one natural reading in which it does not imply a c-statement, i.e. a reading under which it is not equivalent to an instance of $\Diamond p \wedge \neg p$ where p is an r-statement.

Suppose that the astrophysicist of our previous example now asserts the following sentence:

(1) Although no planet other than Earth is habitable, it is not necessarily so.

Just as the sentences discussed at the beginning of the chapter (§42), this sentence appears to claim that things could have been otherwise. It is equivalent to an instance of the schema $\Diamond p \wedge \neg p$. More precisely, it is equivalent to the conjunction of the following:

(2) No planet other than Earth is habitable.

(3) It is possible for something to be a habitable planet other than Earth.

But, the thought goes, (1) is a c-statement. Therefore, (1) does imply contingentarianism. My claim that ordinary modal discourse is not committed to contingentarianism seems thus in bad shape.

This diagnostic is too hasty. Indeed, before concluding that (1) is a c-statement, one must account for quantifier restriction. More precisely, the fact that (1) is equivalent to an instance of $\Diamond p \wedge \neg p$ is not quite enough to conclude that it is a c-statement. One must also ensure that the value of p in this instance is an r-statement. And, by hypothesis, quantifiers in r-statement are unrestricted (§11). But if a sentence is asserted as part of ordinary modal discourse, we have no guarantee that the quantifiers it contains are unrestricted.

And indeed, it is natural to read the quantifier in (2) as restricted to the set of objects in our solar system (or to some set excluding exoplanets). This is a natural reading for the same reason as before: in this case, it is uncharitable to read the astrophysicist as implying that no planet whatsoever is habitable. So, if we want to formulate (2) using an unrestricted quantifier, we must write

(4) $\neg\exists x(Sx \wedge Hx)$,

where *S* abbreviates '…is in our solar system' and *H* abbreviates 'is a habitable planet other than Earth'.

Given that (2) is (implicitly) only about the set of objects in our solar system, does this hold for (3) as well? In this case, there is no definitive answer to this question. On the one hand, the astrophysicist may be taken to mean that something could be a habitable planet in our solar system. Under this reading, rewriting (3) to enforce the use of an unrestricted quantifier, we get

(5) $\Diamond\exists x(Sx \wedge Hx)$.

And since the conjunction of (4) and (5) is clearly a c-statement, this reading does yield contingentarianism. Similarly, the astrophysicist may also be taken to mean that some object in our solar system (perhaps Mars, perhaps another planet, perhaps something else) could be a habitable planet, i.e.

(6) $\exists x(Sx \wedge \Diamond Hx)$.

Again, this reading yields contingentarianism. (4) and (6) imply that

(7) $\neg Ha \wedge \Diamond Ha$

holds for some particular thing a such that 'Sa' is true, i.e. for some object in our solar system. And (7) is clearly a c-statement.

Yet not every available reading of (3) yields contingentarianism. The astrophysicist may also be taken as saying that it is possible for something (whatever it is exactly) to be a habitable planet other than Earth. That is (3) may be read as

(8) $\Diamond \exists x Hx$.

And the conjunction of (4) and (8) does not imply a c-statement. (Presumably, another available reading of (3) is

(9) $\exists x \Diamond Hx$.

Given what we saw in §15, (8) and (9) are equivalent. Therefore, I ignore this complication in what follows. In any case, this does not matter for our purposes. The conjunction of (4) and (9) does not imply a c-statement either.)

To summarize: when sentence (1) is asserted as part of ordinary discourse, it typically has multiple available readings, and it only commits one to contingentarianism under some of these readings. It is worth putting this point in more abstract terms. Because quantifier restriction is commonplace in ordinary discourse, to assess whether an ordinary modal sentence such as

(10) It is possible for something to be *F*, even though nothing is *F*

is indeed a c-statement, one must first rewrite it with unrestricted quantifiers. In doing so, it often turns out that the sentence is ambiguous, i.e. that it has multiple available readings. And in some instances, these readings include

(11) $\Diamond \exists x Fx \wedge \neg \exists x (x \in D \wedge Fx)$,

where D is a restricted set of things whose identity depends on the particular context in which the sentence was asserted. But (11) does not imply a c-statement. So, in those cases, asserting the ordinary modal sentence (10) does not commit one to contingentarianism, contrary to what it seems at first glance.

I said that *some* instances of (10) have (11) as an available reading. How general is this result? At first glance, it seems that the answer is 'not very general'. It seems relatively rare that when a sentence apparently claiming that things could have been otherwise is asserted as part of ordinary discourse, it can be read as (11). Indeed, if an instance of (10) contains only unrestricted quantifiers, I have simply no means to show that it is ambiguous in the same way as (1).

This objection can be addressed by realizing that unrestricted quantification in ordinary discourse is much rarer than it seems. Because of this, it is in fact very common for an ordinary sentence such as (10) to have (11) as an available reading. I develop this reply in the next section.

45. Unrestricted Quantification

It seems that my analysis of ordinary sentences apparently claiming that things could have been otherwise is not general enough, because it does not account for those sentences in which the quantifiers are not restricted. For example, suppose that our astrophysicist now asserts

(1) There could be cube-shaped planets, even though there are none.

Again, this sentence is equivalent to an instance of $\Diamond p \wedge \neg p$, more precisely to the conjunction of:

(2) No planet is cube-shaped.

(3) It is possible for something to be a cube-shaped planet.

But, the objection goes, I cannot plausibly maintain that the quantifier in (2) is implicitly restricted. So, by rewriting (2) to enforce the use of unrestricted quantifiers, we get

(4) $\neg\exists x Cx$,

where 'C' abbreviates '…is a cube-shaped planet'. Similarly, rewriting (3) gives us

(5) $\Diamond\exists x Cx$.

And the conjunction of (4) and (5) is obviously a c-statement.

I reply that, contrary to appearances, the quantifier in (2) is implicitly restricted if this sentence is asserted as part of ordinary discourse. We saw above that there are many *obvious* examples of quantifier restriction (either implicit or explicit) in ordinary discourse. However, these obvious examples do not cover all the cases of quantifier restriction. Often, the quantifiers in a sentence appearing in ordinary discourse will be restricted, but only in a very subtle way. Suppose that our astrophysicist now claims that all planets are sphere-shaped. *Prima facie*, the quantifier in their sentence should be taken as unrestricted. The astrophysicist is not talking only about planets in our solar system, or only about planets that have been discovered so far. Yet, I argue that even in that case, the universal quantifier is implicitly restricted.

This is revealed by the fact that it is dialectically inappropriate to oppose the astrophysicist claim by putting forward the view that there are parallel universes in which the laws of nature allow cube-shaped planets, or the view that some civilization in the distant future is so technologically advanced that it can reshape planets to its will, or the view that there are abstract or mental unshaped planets, etc. To be clear, the reason these views are inappropriate objections to the astrophysicist claim is not that they are wrong (even though they presumably are). Rather, these views are inappropriate objections because they ignore the implicit quantifier restriction in the astrophysicist statement. The astrophysicist is clearly in their dialectical right to dismiss the objection by answering something like 'I obviously wasn't talking about these planets, assuming they only exist'. This indicates that they intend the quantifier in their sentence to range over a set that excludes these weird (parallels, future, abstract, etc.) planets. Instead, the quantifier is intended to range over the set of things in the observable universe, the set of things subjected to the familiar laws of nature, or a similar very encompassing set.

What holds in the astrophysicist case holds for ordinary discourse in general. Truly unrestricted quantification is rare outside of philosophical discourse. This is not particularly surprising. In ordinary discourse, we are most often only interested in talking about the things we know exist or (in the case of ordinary ontological inquiry) about the things we have at least some (pre-theoretical) reasons to believe exist. However, the notion of unrestricted quantification is completely oblivious to these epistemic considerations. Because of this, it is expected that quantification in ordinary (by contrast to philosophical, logical, or mathematical) discourse will not be made with the intent to be unrestricted.

Clearly, pointing to weird (parallels, future, abstract, etc.) planets is not more a dialectically appropriate objection to (2) than it is to 'all planets are sphere-shaped'. This indicates that the quantifier in (2) is not intended to range over the set of all things, but over a (presumably very encompassing) set D from which weird objects are excluded. Thus, if we rewrite (2) to ensure that we use an unrestricted quantifier, we do not get (4), but rather

(6) $\neg\exists x(x \in D \wedge Cx)$.

We are now in a similar setting as the one presented in the previous section. Among the available readings of (1), we have the conjunction of (6) and (5), which does not imply a c-statement.

At this point, one may raise the following objection. Suppose that I am right and that (6) is the correct way to render 'no planet is cube-shaped' as it appears in (1). Why, then, should we believe that the other conjunct of (1), 'it is possible for something to be a cube-shaped planet', can be read as (5) and not only as

(7) $\exists x(x \in D \wedge \Diamond Cx)$,

or perhaps as

(8) $\Diamond\exists x(x \in D \wedge Cx)$,

in which case (1) does imply a c-statement no matter what. In other words: if the quantifier in 'no planet is cube-shaped' is implicitly restricted, why shouldn't it also be the case of the quantifier in 'it is possible for something to be a cube-shaped planet'?

Answer: because even assuming that this latter sentence is asserted as part of ordinary discourse, it is *not* dialectically inappropriate to argue in its favour by insisting that there are cube-shaped planets in parallel universes, future cube-shaped planets, and so on. One may assert that something could be a cube-shaped planet precisely because they think that (say) there are parallel universes in which the laws of nature are different. (Whether this is right is, of course, a completely different matter.) In short, the idea is that we are more liberal with our quantifiers when we talk about what could have been the case than when we talk about what is the case. A bit more precisely, the range of a quantifier in ordinary discourse will tend to be larger if the quantifier is in the scope of a possibility operator than if it is not.

If I am right, we have here another example of sensitivity to the syntactical context. Above (§43), we saw that the range of the quantifiers in a sentence sometimes varies depending on whether the sentence is in the scope of a negation operator, i.e. depending on whether the sentence is asserted or denied. Similarly, we see here that the range of the quantifiers in 'something is a cube-shaped planet' varies depending on whether the sentence is in the scope of a possibility operator, i.e. depending on whether the sentence is asserted or merely hypothesized.

One may still be unconvinced by this reply. They may protest that (5) is not a natural way to read 'it is possible for something to be a cube-shaped planet'. After all, certainly, the quantifier in this sentence is not *intended* to range unrestricted, for precisely the reason I outlined above. I am sympathetic to this line of thought. Yet, even if this is right, the point I just made still holds: in ordinary discourse, the range of the quantifier tends to be larger if the quantifier is in the scope of a possibility operator. If this phenomenon is at play for 'it is possible for something to be a cube-shaped planet', then this sentence should be understood as

(9) $\Diamond\exists x(x \in D' \wedge Cx)$,

where D' is a proper superset of D. And asserting the conjunction of (6) and (9) does not commit one to contingentarianism any more than asserting the conjunction of (6) and (5) does.

To present the material of this section, I have used the example of sentence (1). However, I have said nothing of importance that relies on the specificities of this example. Many sentences apparently

claiming that things could be otherwise can be treated similarly as (1). I say 'many sentences', not 'every sentence'. Some sentences, or at least some sentences in some contexts, resist this treatment. In particular, this seems to be the case of sentences for which the quantifiers are restricted to a rather small set, as was the case for the sentence 'although no planet other than Earth is habitable, it is not necessarily so' discussed in the previous section. But as we saw, these sentences are ambiguous in their own way, and so they do not threaten my view that ordinary modal discourse is not committed to contingentarianism.

One may raise a general objection against my view. I said that in ordinary (modal) discourse, the range *D* of quantifiers in a sentence is not *intended* to be unrestricted. Yet, it might nonetheless *turn out* that *D* is unrestricted. For example, it might turn out that things in the observable universe are really all the things there are, such that when the astrophysicist says 'all planets are sphere-shaped', the quantifier in this sentence is unrestricted after all. If so, unrestricted quantification outside of philosophical discourse is not as rare as I make it seem.

One way to answer the objection is to note that it would be quite a miraculous coincidence if quantifiers in ordinary discourse were to range unrestricted, even though there is no intention of them doing so. Another way to answer is to take a stance on what there is, and argue that there are indeed things not in the range of quantifiers ordinarily found in modal discourse: weird things, perhaps of the kind sometimes discussed by philosophers, things such as planets in universes where laws of nature are different, future planets reshaped by an advanced civilization, abstract or mental unshaped planets, etc. In the same vein, but more modestly, one may also argue that there are such weird things *if* ordinary sentences apparently claiming that things could be otherwise are true.

Alternatively, if one wishes to stay neutral regarding the ontological question 'what is there?', they can grant the objection, but maintain the following conditional: *if* the quantifiers in ordinary modal discourse do not range over the set of all things, *then* ordinary modal discourse is not committed to contingentarianism. Since the antecedent of this conditional is by no means implausible, this still manages to put some pressure on someone worrying that necessitarianism blatantly contradicts the way we ordinarily talk and think about what could have been the case.

46. Unquantified Sentences

The account developed in the previous sections does not extend to sentences apparently claiming that something in particular could have been otherwise. For example, the account is unable to deal with the sentence

(1) Venus could be a moon, even though it is not

since there are no quantifiers (restricted or not) in this sentence. More generally, the account does not apply to sentences of ordinary modal discourse that are equivalent to an instance of $\Diamond p \wedge \neg p$ where p does not contain any quantifier. There are several ways to deal with this limitation.

One approach is to admit that ordinary modal discourse is contingentarianist when it comes to sentences referring to particular things. Although the claim that some planet could have been cube-shaped does not commit one to contingentarianism, the claim that Venus could be cube-shaped does. This admission may lead us to the conclusion that ordinary modal discourse is largely wrong, or at least largely unwarranted. Alternatively, it may prompt us to drop necessitarianism for the milder view that excludes the problematic sentences from the discussion. That is, instead of maintaining that no c-statement is true, one may maintain that no sentences of the form $\Diamond p \wedge \neg p$ is true if p is an existential r-statement (and so, one that contains a quantifier).

This move is not as much an admission of defeat as it initially appears. Indeed, philosophical discourse is primarily concerned with general statements rather than with statements about particular individuals. For example, the truly interesting philosophical question is not whether *Socrates* (or some other particular human) could fail to be human, but whether something that has the property *being human* could fail to have this property. The milder version of necessitarianism considered here would still be able to answer the latter question, even though, in itself, it would be mute regarding the former question.

Another approach is to maintain that a sentence such as (1) does hide a quantifier. For example, one may, in the manner of Russell (1905, 1919/1993, Chapter XVI), maintain that 'Venus' is better analysed as a definite description and argue that definite descriptions are themselves to be analysed as containing

quantifiers. Thus (1) may be treated similarly to the sentences ‘there could have been habitable planets other than Earth’ or ‘some planet could have been cube-shaped’ discussed in the previous sections.

There is yet another way to deal with this limitation. As before, we argue that sentences such as (1) are ambiguous. In this case, however, the ambiguity does not arise from a variation in the range of the quantifier but rather from a variation in the thing denoted by ‘Venus’. Let us state this proposal more carefully. To begin, notice that (1) is equivalent to the conjunction of:

(2) Venus is not a moon.

(3) It is possible for Venus to be a moon.

The proposal can then be stated as follows. The name ‘Venus’ in (2) denotes Venus. However, in (3), it is unclear whether this name also denotes Venus or only something similar to Venus — something possessing most of the properties of Venus but not identical to Venus. And it is only in the former case that (1) is a c-statement. So, contrary to what may seem at first, asserting (1) does not commit one to contingentarianism.

(This proposal is very roughly inspired by the counterpart theoretical treatment of modality (D. K. Lewis, 1968) in that it suggests understanding (3) by reference to a counterpart of Venus. Of course, it also starkly differs from counterpart theory in a crucial respect: I do not suppose that the counterpart of Venus makes (3) true – at least not if ‘Venus’ in this statement denotes Venus rather than its counterpart.)

Why maintain that (3) is ambiguous in the suggested way? To begin, it seems that one may be confident that (3) is true, but be less confident that

(4) It is possible for something identical to Venus to be a moon.

is true, even though they are aware that something identical to Venus is Venus (more generally, if they understand the meaning of ‘identical to’ in this context). This difference in confidence cannot very well be explained by the fact that (3) is a less complex or more familiar sentence than (4). Indeed, it does not seem that someone confident in the truth of ‘Venus is a planet’ will be less confident in the truth of ‘something identical to Venus is a planet’ if they know that whatever is identical to Venus is Venus.

Instead, this difference in confidence is better explained by maintaining that one perceives an ambiguity in (3) but not in (4), so that it does not seem that (3) is equivalent to (4).

Additional support for the fact that 'Venus' in (3) is ambiguous can be found in the broader context of ordinary discourse. Ambiguity in proper names is not specific to modal discourse. Here, I do not have in mind simple cases of polysemy, e.g. a case where it is ambiguous whether 'Mars' denotes the planet or the Roman god. These cases rarely occur in practice, and when they do, the ambiguity is easily dispelled (just ask 'are you talking about the planet or the god?'). Rather, I am thinking of more elaborate cases where the ambiguity cannot be dispelled by staying within ordinary discourse itself. The idea behind this case is broadly inspired by the famous remark that 'if we are to use a symbol a to signify an object, we must have a criterion for deciding in all cases whether b is the same as a' (Frege, 1884/1953, p. 73)

For a simple (although somewhat artificial) example of the kinds of cases I have in mind, suppose that one is tasked with creating a list of planets in our solar system. And suppose that in doing so, they produce the following output:

(5) Planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus, Pluto.

In this case, the title of the list, 'Planets', can be considered a name for the list. This name, just as any other, can be used to form sentences that say something about the list, e.g. 'Planets is a complete list of planets in our solar system', 'Planets contains nine items', etc. (If these sentences sound somewhat strange, it is only because we rarely refer to lists by their title, preferring such expressions as 'this list' or 'the list of planets'.)

Suppose now that one realizes they mistakenly included Pluto in their list. This prompts them to update their previous output.

(6) Planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus.

Once again, 'Planets' can be considered a name for the list of planets. Just as before, it can be used to form sentences expressing properties of this list, e.g. 'Planets contains eight items'.

Does the name ‘Planet’ in those sentences denote the same thing (the same list) as it did before, or only something similar to the thing it denoted before? After a moment of reflection, it becomes apparent that this question has no clear answer. Indeed, ‘Planet’ denotes the same thing as above iff the list defined in (6) is identical to the list defined in (5). But given the current context, there is simply no way to decide whether (6) is indeed identical to (5) or not. If one wishes to answer this question, one must first give a precise definition of what a list is, e.g. define a list as a tuple (in which case, the two lists above are not identical). But such a definition is not part of ordinary discourse. So, as far as ordinary discourse is concerned, it is unclear whether after the update ‘Planets’ denotes the same thing as it did before, or only something similar to it.

(In case the example just given appears too artificial and not ordinary enough, note that other more natural examples can be proposed. We often use the same title for a text both before and after it has been revised. Assuming the title behaves as a name, is the title denoting the same thing both before and after the text revision? Here also, the question cannot be properly answered unless one has given a precise definition of text, one that lays outside ordinary discourse.)

The name ‘Venus’ in (3) is ambiguous in much the same way as ‘Planets’ in (6). The source of the ambiguity is not the same in both cases. For ‘Planets’, the ambiguity is caused by an alteration of the thing initially denoted, while for ‘Venus’ it is because the name appears in the scope of a possibility operator. Yet, the result is the same in both cases: as far as ordinary (modal) discourse is concerned, there is simply no way to decide whether ‘Venus’ denotes the same thing as in (2) or only something similar to it. This is not to say that the matter cannot be decided at all. For example, one may stipulate that the name filling the argument place in ‘it is possible for … to be *F*’ keep the same denotation as it does when it fills the argument place in ‘…is *F*’ — just as one may define a list as a tuple. But this stipulation does not characterize the behaviour of ‘it is possible for … to be *F*’ *in ordinary discourse*.

As the reader may have noticed, much of the argument developed in this chapter (and, to some extent, in the previous chapter) has its source in the following idea: some contingentarianism claims – claims such as ‘there could have been cube-shaped planets, even though there are none’ – may turn out to be

false not because there are fewer possibilities than generally thought, but rather because there is, so to speak, more actuality than generally thought. Yet, to be clear, I am not arguing against contingentarianism on the grounds that reality is more populous than we typically take it to be. My point in this chapter was rather that we should not be too prompt to read ordinary modal discourse as contingentarianist, because even though ordinary modal discourse often asserts that something is not among a certain group or plurality of things, it rarely takes a stance on what is and what is not *simpliciter*.

IX. Consequences of Necessitarianism

In previous chapters, I criticized views in the epistemology of modality according to which we can gain evidence for mere possibilities. In particular, I claimed that neither modal rationalism, nor essentialist or potentialist bridge views provide satisfactory evidence for a c-statement like 'Neptune could have been discovered in 1847 (even though it was not)'. Of course, these views do not warrant the negation of such a c-statement either. Does this mean that we should abandon hope of deciding between necessitarianism and contingentarianism? It does not. We can still adjudicate between necessitarianism and contingentarianism, although in a less direct way. We may show that the theoretical benefits minus the costs of one position outweigh those of the other. And here, the comparison favours necessitarianism. By adopting necessitarianism, we can solve — or at least make notable progress — on various philosophical problems for very low theoretical cost. In fact, we already saw one advantage of necessitarianism over contingentarianism: it allows us to avoid a specific kind of radical scepticism. This chapter discusses some other consequences of the view.

I begin by discussing three worries raised by necessitarianism regarding the distinction between nomological and accidental necessities (§47), non-vacuously true counterfactuals (§48), and essential properties (§49). I then show how contingentarianism is a crucial assumption behind many philosophical arguments (§50), in particular arguments that aim to establish that something a is not identical to something b (§51). Since such arguments are often at the heart of difficult philosophical puzzles, dropping the standard contingentarianist assumption on which they are built allows us to avoid these puzzles. Finally, I discuss the benefit that adopting a necessitarian framework has on issues related to merely possible things (§52), and the principle of sufficient reason (§53).

47. Nomological Truths

The reader may worry that necessitarianism erases the distinction between nomological and accidental truths. This distinction is classically introduced with a pair of statements such as the following:

(1) All uranium spheres are less than one kilometre in diameter.

(2) All gold spheres are less than one kilometre in diameter.

The idea is that while the two sentences are true, (1) is true as a matter of law, while (2) is only accidentally true.

> The first I'm willing to accept as putatively a matter of law, for the critical mass of uranium will prevent the existence of such a sphere. The second is an accidental or incidental fact—the earth does not have that much gold, and perhaps no planet does, but the science I accept does not rule out such golden spheres. (van Fraassen, 1989, p. 27)

This distinction between kinds of truth is closely linked to a distinction between the modal status of these sentences. The idea is that (1) is necessary, but that (2) is not, as is clearly suggested by the expression 'accidental truth'. And it is here that trouble arises for the necessitarian, for they must maintain that both (1) and (2) are necessarily true. And so, it seems that the necessitarian is unable to account for the difference between (1) and (2) – and more generally, for the distinction between nomological and accidental truths.

I reject this diagnosis. The necessitarian is perfectly able to account for the apparent distinction between nomological and accidental truths. Remember that the modal question is only concerned with a particular kind of modality (§4). So, the necessitarian needs only claim that every truth is necessary in the relevant sense of 'necessary', i.e. roughly speaking that every truth is true in virtue of the essence of all things taken collectively (§32). But the sense of 'necessary' relevant to the modal question is, of course, not the only available sense of 'necessary'. For example, a statement is sometimes said to be necessary (specifically, logically necessary) iff its negation is a logical contradiction. Clearly, the necessitarian does not need to claim that every statement is necessary in this sense.

The necessitarian may thus explain the apparent difference between the modal status of (1) and (2) by reference to another kind of modality than the one relevant to the modal question. While they indeed

claim that both (1) and (2) are necessary in the sense relevant to the modal question – that both (1) and (2) are true in virtue of the essence of all things – they may very well grant that (1), but not (2), is necessary is another sense of necessary. More generally, they may draw the line between nomological and accidental truths by reference to a kind of necessity different from the one relevant to the modal question. (An obvious candidate for the kind of necessity in question is nomic necessity, as discussed in §31. However, as far as the modal problem is concerned, we can stay neutral about what this other kind of necessity is exactly.)

48. Counterpossibles

Another worry is that necessitarianism only allows for vacuously true counterfactuals. Some counterfactuals have an antecedent that is not only false, but impossible. Following a now standard terminology, call this a counterpossible. At least in their orthodox versions, the strict conditional analysis (e.g. Peirce, 1896; C. I. Lewis, 1912, 1914; Carnap, 1947, Chapter 5) and the similarity analysis (e.g. Stalnaker, 1968; Stalnaker & Thomason, 1970; D. K. Lewis, 1973a) of counterfactuals both have as a result that every counterpossible is true. That is, both analyses validate the schema

Vacuism. $\neg\Diamond p \rightarrow (p > q)$

where p and q are statements and '… >…' is the counterfactual operator 'if it were the case that …, it would be the case that …'. It is controversial whether vacuism does indeed hold for English counterfactuals. Kocurek (2021) contains a recent overview of these debates.

Assuming that vacuism holds, it seems that the necessitarian is in trouble. According to necessitarianism, every false statement is impossible, and so every counterfactual is a counterpossible. Therefore, the necessitarian has no choice but to maintain that every counterfactual is true. But surely, this is wrong. For example, consider the following pair of counterfactuals:

(1) If Venus were cube-shaped, some *planet* would be cube-shaped.

(2) If Venus were cube-shaped, some *sphere* would be cube-shaped.

According to necessitarianism, it is impossible that Venus is cube-shaped (since Venus is not cube-shaped). Therefore, both (1) and (2) are true, given vacuism. But, the thought goes, this is wrong: only the first of these two counterfactuals is true.

Given what I have said in the previous section, it should be clear how I wish to reply here. The necessitarian only need to maintain that it is not possible that Venus is cube-shaped in the sense of 'possible' relevant to the modal problem. But they may very well accept that there are other senses of 'possible', irrelevant to the modal problem, under which it is possible that Venus is cube-shaped. For example, if 'possible' expresses compatibility with our concepts, the necessitarian does not need to maintain that it is impossible that Venus is cube-shaped. And this notion of possibility is indeed one under which (1) but not (2) turns out to be true, assuming an orthodox analysis of counterfactuals.

49. Essence

One may also worry about how necessitarianism interacts with essentialist claims. For example, are necessitarians committed to the view that an animal essentially belongs to its species? Are they committed to the view that a person essentially has their gender? The answer to both questions is negative. More generally, it turns out that adopting necessitarian has little effect on whatever views one may hold regarding the essence of things.

This claim may initially be surprising. According to a traditional account of essence (Marcus, 1967, 1971; Kripke, 1972; Putnam, 1975) — an account that was very popular for much of the 20th century — an essential property is just a necessary property. That is,

Modalism. A property is essential to something iff this thing necessarily has that property.

Thus, to say that Socrates is essentially human is to say that Socrates is necessarily human, i.e. that Socrates necessarily has the property *being human*. Similarly, to say that Socrates is not essentially a philosopher is to say that Socrates is not necessarily a philosopher, i.e. that Socrates does not necessarily have the property *being a philosopher*.

If modalism is true, adopting necessitarianism forces one to take a stance regarding many essentialist claims. For example, if both necessitarianism and modalism are true, it seems that one has little choice

but to accept origin essentialism, the view that animals essentially belong to their species. Indeed, from necessitarianism and the uncontroversial claim that Socrates is human, it follows that Socrates is necessarily human. From this, it follows by modalism that Socrates is essentially human. One way to fight this conclusion is to maintain that 'Socrates is human' does not ascribe any property or relations to Socrates, i.e. to maintain that this sentence is not an r-statement. If so, necessitarianism would be irrelevant here. However, this strategy does not appear likely to succeed and would force the necessitarian to take a stance on what properties there are.

Anyway, one need not be worried here. Modalism has fallen out of favour and is now widely thought to be false. Indeed, some counterexamples have famously been provided against the right-to-left direction of modalism, i.e. against the claim that if something necessarily has a property, then this property is essential to that thing (Fine, 1994). For example, while it is necessary that Socrates is a member of the set {Socrates}, it is not in the essence of Socrates to be a member of this set (§32). Thus, at best, only the left-to-right direction of modalism holds:

LR. If a property is essential to something, this thing necessarily has this property.

But then, the above argument for origin essentialism is blocked. While the necessitarian maintains that Socrates is necessarily human, it does not follow from this and LR that Socrates is essentially human.

50. Philosophical Arguments

If it is assumed to be true — or, at least, if it is not assumed to be false — many philosophical arguments immediately become much more tractable. Above (§18), we saw that contingentarianism is a standard view within philosophy. In particular, we saw that contingentarianism is often a background assumption in the discussion of philosophical arguments. Indeed, many philosophical arguments start by describing some scenario. Then, from this scenario, and perhaps some other principles, the argument draws a conclusion about what is. For example, the passage entitled 'Case I' in Gettier (1963) introduces a scenario which is used to argue that knowledge is not justified true belief. (Note that here, I am talking specifically about Case I, and not about Gettier cases in general. This is important, because not every Gettier case commits one to contingentarianism. I come back to this point at the end of the section.)

Similarly, the scenario described in Frankfurt (1969) is used to deny the view that one is morally responsible only if they could have done otherwise, the one in McCloskey (1957) is used to argue against some version of utilitarianism, etc.

For such arguments to go through, it is crucial that the scenario described is a possible one. If this requirement is not satisfied, there is no way to rely on the scenario to draw a conclusion about what is the case. For example, describing a scenario in which a village barber shaves all and only those who do not shave themselves is not enough to conclude that such a barber could exist, since the scenario described is not a possible one. Similarly, consider the zombie argument, discussed earlier (§36). Roughly, the argument starts by describing a scenario in which there are phenomenal zombies. From there, the argument proceeds to the conclusion that phenomenal consciousness is not purely physical. But the argument goes through only if the scenario described is a possible one — hence the debate on the possibility of phenomenal zombies.

In fact, the described scenario is not even central to such arguments. Rather, the crucial point is that the scenario, or some relevant feature of the scenario, is possible. More precisely, the heart of these arguments is an instance of the schema $\Diamond p$, where the value of p is a statement that follows from the scenario described. For example, consider the argument against the justified true belief account of knowledge put forward by Gettier's Case I. The heart of the argument is not the scenario described by this case. Rather, the heart of the argument is a modal claim. For better readability, let us define the following abbreviations:

P: Smith has a justified true belief, but no knowledge, that the chosen candidate has ten coins.

Then, the modal premise at the heart of this argument is: $\Diamond P$. Assuming that one understands what this claim means and has already every evidence in its favour, nothing is gained by describing the scenario put forward by Case I.

To say that the scenario described is not central to the argument is not to say this scenario plays no role in the argument. First, describing the scenario may allow a better understanding of the modal claim at the heart of the argument. For example, the scenario described by Case I helps clarify how the expressions 'knowledge' and 'justified true belief' in *P* are to be interpreted. Second, describing the

scenario is often supposed to support the modal claim at the heart of the argument. In particular, someone reading the description of a scenario will typically imagine this scenario. This immediately shows that the scenario is imaginable. And, as we saw (§21), imaginability is sometimes thought to be evidence for possibility. Upon reading Case I, one will typically imagine someone with a justified true belief, but no knowledge, that the chosen candidate has ten coins. In doing so, the reader will immediately find out that it is imaginable that *P*. And if imaginability were the mark of possibility, this would provide evidence that $\Diamond P$.

So, many philosophical arguments have at their heart an instance of the schema $\Diamond p$. However, since p can stand for any statement, this characterization is fairly uninformative. Fortunately, we can do better. Indeed, it turns out that the value of p is typically an instance of the schema $q \wedge \neg r$, where q and r themselves stand for statements that follow from the given scenario. In other words, the central modal claim is an instance of the schema $\Diamond(q \wedge \neg r)$. To illustrate, consider again the argument put forward by Case I and let us define the following abbreviations.

J: Smith has a justified true belief that the chosen candidate has ten coins.

K: Smith knows that the chosen candidate has ten coins.

Then, the modal premise at the heart of this argument is: $\Diamond(J \wedge \neg K)$. Clearly, this statement is equivalent to $\Diamond P$.

Thus, many philosophical arguments have at their heart a claim of the form $\Diamond(q \wedge \neg r)$. Now, a claim of this form is clearly a claim about what is possible. Yet, typically, these arguments are meant to support a conclusion about what is the case, not merely about what is possible. For example, the argument behind Case I is not (or at least, not only) supposed to show that *possibly* knowledge is not justified true belief. Rather, the argument aims to establish the stronger claim that knowledge is not justified true belief. So, to conclude something about what is the case from the central claim about what is possible, these arguments need to appeal to a principle bridging the gap between what is possible and what is the case.

Given that the modal premise is an instance of $\Diamond(q \wedge \neg r)$, this bridge principle will be an instance of the schema $s \rightarrow \Box(q \rightarrow r)$, where s stands for the negation of the claim that the argument is trying to

establish. For example, the argument put forward by Case I aims to show that knowledge is not justified true belief. Thus, the bridge principle in this argument is this: if knowledge is justified true belief, then $\Box(J \rightarrow K)$. It should be noted that this bridge principle is often implicit in the text where the argument appears. For example, the bridge principle just mentioned (or even something vaguely resembling it) does not appear anywhere in the text of Case I.

Let us summarize. I have shown that many philosophical arguments have at their heart a modal claim about what is possible. This modal claim is used together with a bridge principle to draw some conclusion about what is the case. More precisely, many philosophical arguments can be seen as an instance of the following schemata.

(A1) $\Diamond(q \wedge \neg r)$

(A2) $s \rightarrow \Box(q \rightarrow r)$

(A3) So, $\neg s$

Given standard propositional logic and the usual definition of '$\Diamond$' as '$\neg\Box\neg$', any instance of schemata (A1)–(A3) yields a valid argument. Figure 9.1 shows how some classical arguments can be reconstructed as instances of these schemata.

Crucially, notice that contingentarianism has not entered the picture at this point. Indeed, all I have done is to show that many philosophical arguments have at their heart an instance of the schema $\Diamond p$, i.e. a claim about what is possible. And a claim about what is possible does not in itself entail that some things could be otherwise. Obviously, one cannot conclude $\Diamond p \wedge \neg p$ from $\Diamond p$ alone. Yet, there is little doubt that these arguments *are* typically committed to contingentarianism. Consider again Case I. Any minimally attentive and charitable reading of this passage makes it clear that the scenario described is not supposed to be an actual one. But why is that so? How come although the premise in many philosophical arguments does not commit one to contingentarianism, contingentarianism is nonetheless often implied by those arguments?

Case I (Gettier, 1963)

J: Smith has a justified true belief that the chosen candidate has ten coins.

K: Smith knows that the chosen candidate has ten coins.

(1) $\Diamond(J \wedge \neg K)$

(2) Knowledge is justified true belief $\rightarrow \Box(J \rightarrow K)$

(3) So, knowledge is not justified true belief

Frankfurt Case (Frankfurt, 1969)

R: Jones is morally responsible for performing a certain action.

O: Jones could have done otherwise.

(1) $\Diamond(R \wedge \neg O)$

(2) One is morally responsible only if they could have done otherwise $\rightarrow \Box(R \rightarrow O)$

(3) So, it is not the case that one is morally responsible only if they could have done otherwise

The Sheriff Scenario (McCloskey, 1957)

H: Framing the innocent man maximizes happiness.

G: Framing the innocent man is morally good.

(1) $\Diamond(H \wedge \neg G)$

(2) Everything that maximizes happiness is morally good $\rightarrow \Box(H \rightarrow G)$

(3) So, not everything that maximizes happiness is morally good.

The Zombie Argument (Chalmers, 1996)

P: Zombie has all the physical properties of a human.

M: Zombie has all the mental properties of a human.

(1) $\Diamond(P \wedge \neg M)$

(2) Everything is physical $\rightarrow \Box(P \rightarrow M)$

(3) So, not everything is physical.

Figure 9.1. Some classical philosophical arguments, reconstructed according to (A1)–(A3)

Answer: because of how the instance of $\Diamond p$ at the heart of the argument is supported — or, more accurately, because of how this instance is not supported. Typically, when a premise of form $\Diamond p$ appears as part of a philosophical argument, purported evidence that $\Diamond p$ is not also evidence that p. For example,

the modal premise at the heart of the argument in Case I, $\Diamond P$, is sometimes thought to be supported by the fact that it is imaginable that *P*. Whether this is right or not, one thing is clear: this fact is not evidence that *P*. To gain evidence that someone has a (justified true) belief, one must somehow *observe* someone having the belief. But imagination is no way to observe someone's beliefs.

More generally: given an instance of $\Diamond p$ used as a premise in a philosophical argument, evidence that p must typically be empirical evidence. Thus, if a purported piece of evidence that $\Diamond p$ is not empirical evidence, it is not evidence that p. And given that $\Diamond p$ is asserted as part of a *philosophical* argument, whatever is supposed to be evidence that $\Diamond p$ is typically not empirical evidence. But here, contingentarianism takes root. For if $\Diamond p$ is supported independently from p, one maintaining $\Diamond p$ need not worry about whether p is true or false. So, when one is advancing a philosophical argument on the model of those discussed above, there is no pressure to choose an instance of $\Diamond p$ such that p is true. Because of this, the value of p will often turn out to be a false statement, although it does not technically need to be one.

But, as I have argued in previous chapters, providing evidence for an instance of $\Diamond p$ where p is false is hard. Providing evidence that warrants this instance is harder still. The task becomes even more difficult if one does not wish to rely on the assumption that contingentarianism is true. (As they should: after all, Case I is supposed to show that knowledge is not justified true belief; not that knowledge is not justified true belief *if contingentarianism is true*.) By contrast, if p is true, providing evidence that (warrants the conclusion that) $\Diamond p$ is often easier: just provide some statement e that is evidence for p. Then, the conjunction of e and $p \rightarrow \Diamond p$ is evidence for $\Diamond p$. This suggests that when it comes to selecting an instance of $\Diamond p$ to serve in an argument such as those discussed above, one should worry about whether p is true or false. More precisely, one should (i) prefer values of p such that there is at least some hope to warrant that p is true and (ii) seriously attempt to warrant that p is true, typically through empirical means.

This discussion suggests that when attempting to mount an argument of the form (A1)–(A3), it is preferable to establish the modal claim $\Diamond p$ by showing (typically through empirical means) that p is

true. For example, consider an argument against the justified true belief analysis of knowledge in the style of (A1)–(A3). This argument will be an instance of the following schema:

(B1) $\Diamond p$

(B2) Knowledge is justified true belief $\rightarrow \neg\Diamond p$

(B3) So, knowledge is not justified true belief

For the argument to go through, the value of p must be such that both (B1) and (B2) are true. As we saw, the value suggested by Case I is a false statement (or, at least, it is not intended to be a true statement). This means that in Case I, the first premise is a mere possibility, and thus, that it is hard to establish without assuming contingentarianism, as just discussed. But now, suppose that we can find instead an appropriate value of p such that we know (or, at least, we are warranted to conclude) that p is true. In this case, the first premise of the argument is straightforwardly established.

The question, then, is whether we can indeed find such a value of p. As far as (B1)–(B3) is concerned, it seems that the answer is affirmative. Following the example of Case I, p should be a statement of the form 'someone has a justified true belief, but no knowledge, that …'. And surely, we know that some statements of this form are actually true, because we know that Gettier cases have actually happened (see e.g. Williamson, 2005, p. 12). (Of course, things will not always be as easy as this. Depending on what the conclusion of the argument (A1)–(A3) is supposed to be, there may not be a value of p that renders both premises of the argument true and that we also know to be true.)

This discussion also suggests that by assuming necessitarianism, arguments of the form (A1)–(A3) typically become more tractable. The apparently difficult task of determining whether the modal premise $\Diamond p$ is true or false becomes the easier task of determining whether p is true or false. For example, the task of determining whether zombies are possible is a difficult one, as witnessed by the controversy surrounding the possibility of zombies. But the task becomes easier if 'zombies are possible' is treated as equivalent to 'there are zombies', as it is under necessitarianism. This is not to say that the task will always be easy. But at least, one can rely on well-known and largely uncontroversial methods, methods

such as those used to determine the truth value of ‘there are cube-shaped planets’ and ‘there are winged horses’.

51. Discernibility

Working under the assumption that necessitarianism is true particularly affects modal discernibility arguments. A modal discernibility argument aims to establish that something a is distinct from something b by pointing out that a and b differ in the properties they could have or could lack. Here are three such arguments, informally stated.

> *Statue*. Goliath, a clay statue, is necessarily statue-shaped. Lumpl, the lump of clay that constitutes the statue, is not necessarily statue-shaped. Therefore, Goliath is not identical to Lumpl.
>
> *Pain*. Pain is necessarily painful. C-fibre stimulation is not necessarily painful. Therefore, pain is not identical to C-fibre stimulation.
>
> *Person*. I am necessarily identical to myself. My body is not necessarily identical to myself. Therefore, I am not identical to my body.

As witnessed by the familiarity of these examples, modal discernibility arguments are widely used and discussed in contemporary metaphysics and beyond. The problem of material constitution is built around arguments looking very much like Statue (Baker, 1997; Della Rocca, 1996; Fine, 2003; Gibbard, 1975; Koslicki, 2005; Noonan, 1991; Yablo, 1987). Similarly, Pain is a version of the classic modal argument against reductive materialism (Kripke, 1972, pp. 144–155). And instances of Person are found in the literature on personal identity (D. K. Lewis, 1971).

Modal discernibility arguments are special instances of the schemata (A1)–(A3) where s has the form ‘$a = b$’. For example, letting

> L: Lumpl has the property *being ball-shaped*.
>
> G: Goliath has the property *being ball-shaped*.

Statue can be rendered as follows.

> (C1) $\Diamond(L \wedge \neg G)$.
>
> (C2) Lumpl = Goliath $\rightarrow \Box(L \rightarrow G)$.

(C3) So, Lumpl ≠ Goliath.

Notice that in a modal discernibility argument, the modal premise is not simply asserted. Instead, this premise is derived from upstream considerations. For example, in a typical version of Statue, one will not simply assert that $\Diamond(L \wedge \neg G)$. Rather, they will maintain that $\Diamond L$ and $\neg\Diamond G$, from which it immediately follows that $\Diamond(L \wedge \neg G)$. In fact, one will typically maintain the stronger claims 'it could have been that L' and 'it could not have been that G'. Indeed, the point of a modal discernibility argument is precisely that it could be the case that a has a property that b lacks, even though a and b actually have all the same properties. If it turns out that a actually has a property that b lacks, a *modal* discernibility argument is hardly needed in the first place.

At this point, it becomes clear that modal discernibility arguments do not get off the ground in a necessitarian setting. If one is working under necessitarianism, it could not have been that L, i.e. '$\Diamond L \wedge \neg L$' is false. And since it is here uncontroversial that $\neg L$, we have no choice but to conclude that $\neg\Diamond L$. From this, we can immediately reject the first premise of Statue.

The fact that modal discernibility arguments are blocked in a necessitarian setting is significant. Indeed, when combined with other plausible claims, the conclusion of these arguments is often at the centre of philosophical puzzles. For example, it is often deemed at least *prima facie* plausible (i) that Goliath and Lumpl occupy exactly the same space and (ii) that no two things ever occupy the same space. But if Statue is sound, Lumpl and Goliath are two things. So, at least one of (i) or (ii) must be abandoned. It is because of considerations of this kind that the problem of material constitution is a problem in the first place. But under necessitarianism, Statue is unsound, so the problem is much less pressing. This is not to say that the problem disappears completely. There may, of course, be independent reasons to maintain that Lumpl is not identical to Goliath, e.g. Goliath has the property *being well made* while Lumpl does not (Fine, 2003). Still, without Statue, the claim that Lumpl and Goliath are two things loses much of its initial appeal. And so, the modal problem loses much of its force.

52. BF

Consider the following schema, where φ stands for an open sentence in which x is free:

BF. $\Diamond\exists x\varphi \rightarrow \exists x\Diamond\varphi$

We saw (§15) that instances of this schema are theorems of various quantified modal logics, including the Simplest Quantified Modal Logic. We also saw that it is also a consequence of our framework that this schema holds, at least where φ is such that $\exists x\varphi$ is an r-statement.

It is often considered problematic that all instances of BF hold. Indeed, it seems that there are counterexamples to BF, i.e. instances of BF such that its antecedent is true and its consequent is false. To use a classic example, consider the case where φ is 'x is a child of the Pope'. Here, the corresponding instance of $\Diamond\exists x\varphi$ is

(1) It could be that there is something x such that x is a child of the Pope.

Prima facie at least, (1) seems true. Indeed, (1) does not seem much more objectionable than claims that are typically accepted by contingentarianists, claims like 'I could be standing' and 'Neptune could have been discovered in 1847'. There does not seem to be less evidence for (1) than there is for those claims. We can perfectly well imagine the Pope having a child, we know that there have been many papal bastards in history, etc.

However, the corresponding instance of $\exists x\Diamond\varphi$,

(2) There is something x such that x could be a child of the Pope,

appears to be false. Presumably, no human could have been a child of the Pope. Indeed, it is at least somewhat plausible that (i) every human necessarily has only a single biological father and that (ii) every human is necessarily the child of their father. If so, not only do I not bear the relation *being a child of* to the Pope, but it is also necessary that I do not bear this relation to the Pope. That is, there is no world at which the relation *being a child of* is mapped to a set containing the ordered pair composed of me and the Pope. And, of course, there is nothing special about me here. The same point applies to you, and every other human being.

At the same time, it also seems that no non-human thing could have been a child of the Pope. Indeed, it is at least somewhat plausible that (i) everything that could have been a child of the Pope is a thing that could have been human, and that (ii) no non-human thing could have been human. If so, there is no

world at which the relation *being a child of* is mapped to a set containing the ordered pair composed of Venus and the Pope. And, the thought goes, this holds of Venus but also of every other non-human thing, including chimpanzees, statues, and (if there are such things) collection of atoms.

But if no human could have been a child of the Pope (because no human could have had a different father) and no non-human thing could have been a child of the Pope (because no such thing could have been human), it follows that nothing at all could have been a child of the Pope. That is, there is no world at which the relation *being a child of* is mapped to a set that contains an ordered pair in which the Pope is the second element. Thus, (2) is false. But then, we must either abandon (1) or the relevant instance of BF.

The above argument against (2) rests on controversial essentialist claims, in particular claims about origins and species essentialism. But even if we discard these essentialist views, the issue remains. Indeed, more than the essentialist claims themselves, the real trouble with (2) is the fact that it is hard to see what the thing that could have been a child of the Pope is, what properties this thing has. In particular, it may seem that if there is such a thing, it is of a kind unfamiliar to us. Thus, the thought goes, it is suspicious that there is such a thing in the first place. With this, it becomes apparent that the issue with BF generalizes far beyond the case where the value of φ is 'x is a child of the Pope'. Indeed, an instance of $\exists x \Diamond \varphi$ may still be deemed suspicious, even if it cannot be plausibly rejected based on essentialist considerations.

Much has been written on this and related puzzles. Sometimes, the issue is dealt with by biting the bullet and accepting the problematic instance of $\exists x \Diamond \varphi$. There is something that could have been a child of the Pope. This thing is indeed of an unfamiliar kind, in that it has unusual properties or lacks usual properties. For example, one may maintain that this thing is abstract, or that it does not exist, or that it is not spatio-temporally located, or that it is outside the causal order, etc. Sometimes, the issue is dealt with by denying that all instances of BF hold. This requires spelling out the truth conditions for $\Diamond p$ where p is an r-statement differently from what we did above. For example, one may attempt to deny that 'something has r' is true at a world w iff $f_w(r) \neq \emptyset$. Or they may attempt to deny that 'something

could have had r' is true iff $f_w(r) \neq \emptyset$ for some world w. Such a move has the potential to block the claim that all instances of BF are true.

In any case, it should be clear that the issue is avoided in a necessitarian framework. The necessitarian is under no pressure to maintain (1). Since evidence warrants the conclusion that the Pope has no children, the necessitarian maintains that necessarily, the Pope has no children, so that (1) is false. Therefore, the necessitarian has no trouble maintaining both that all instances of BF are true and that (2) is false. More generally, notice that any problematic instance of BF will be one where evidence warrants that $\neg\exists x\varphi$.

For example, compare the instance of BF where the value of φ is

(3) x is a Martian settlement.

with the instance of BF where the value of φ is

(4) x is an extraterrestrial settlement.

In both cases, the antecedent $\Diamond\exists x\varphi$ will not be particularly controversial under contingentarianist lights. The contingentarianist will presumably accept that there could have been a martial settlement, e.g. if Mars had evolved intelligent life or if NASA had received more funding. And so, the contingentarianist will also accept that there could have been a settlement on a planet other than Earth. However, the consequent $\exists x\Diamond\varphi$ is more problematic when φ is (3) than when φ is (4). There is little reason to deny that, in some remote corner of the universe, there is an extraterrestrial settlement. And so, there is little reason to deny that something could have been a possible extraterrestrial settlement. By contrast, evidence warrants the conclusion that there is no Martian settlement. Because of this, it is hard to see what thing is such that it could have been a Martian settlement.

So, the problematic instances of BF are only those where it is warranted that $\neg\exists x\varphi$. But under necessitarianism, $\neg\Diamond p$ is warranted if $\neg p$ is. Thus, in particular, $\neg\Diamond\exists x\varphi$ is warranted if $\neg\exists x\varphi$ is. And if $\neg\Diamond\exists x\varphi$ holds, so does BF, whatever the value of its consequent. Therefore, the necessitarian straightforwardly avoids the kind of trouble faced by the contingentarianist when it comes to BF.

53. PSR

Another advantage of adopting necessitarianism – or at least, of refusing to assume contingentarianism – is that this allows us to preserve the so-called Principle of Sufficient Reason (PSR). Roughly, the PSR asserts that for every fact, there is a reason why it obtains. The universe is thoroughly intelligible. There are no brute facts, no facts without explanation. Thus, according to the PSR, there is an explanation for why fundamental particles behave as they do, for why those moral principles that hold do so, for why our subjective experiences feel the way they do, and so on.

Historically, the PSR is most closely associated with Leibniz, notably in the *Monadology*, where it is articulated as a fundamental principle for reasoning and for the establishment of truths. Before Leibniz, Spinoza had already placed the PSR at the heart of his philosophical system, viewing it as essential for understanding substance, causation, and modality. However, the principle's roots can be traced back much further than this. Early articulations of the principle appear in the works of pre-Socratic philosophers, notably in Parmenides (see e.g. Della Rocca, 2020). There has recently been a renewed interest in the PSR, prompted in part by the literature on grounding. The idea is that the explanations required by the PSR are *metaphysical* explanations, i.e. precisely those explanations that the grounding relation is supposed to provide. In this perspective, versions of the PSR using the notion of grounding have been proposed (Dasgupta, 2016).

The PSR has a certain appeal. Della Rocca (2010) argues for the principle by examining various scenarios across different philosophical contexts where the demand for explicability seems not only intuitive, but compelling. To see the kinds of scenarios at play here, consider two objects that are categorically identical in every respect: they have the same molecular structure, the same mass, etc. In this case, it seems untenable that these objects have different dispositions, e.g. that one is soluble in water while the other is not. Indeed, given the assumption that the two objects are categorically the same, accepting a difference in their respective dispositions would mean accepting a brute dispositional difference: a difference in dispositions that is not explained by a difference in categorical features. But, the argument goes, we find it intuitively plausible that there is no brute dispositional difference. This

shows that we (perhaps implicitly) endorse the view that facts about dispositional differences should be explained.

A similar point can be made regarding many other areas, including personal identity, consciousness, causation, and modality. In every scenario considered, the inexplicability of some fact is presented as untenable, thus nudging us toward the PSR. For if one accepts that inexplicability is untenable in some cases, one faces pressure to accept that inexplicability is untenable in general. At any rate, if one wishes to reject inexplicability in some but not all cases, one should have a way to justify the distinction. But finding a way to distinguish between problematic and unproblematic cases of inexplicability is hard. While this is obviously not enough to establish the PSR, it shows that the PSR is more appealing than it is generally thought to be in the contemporary literature.

The PSR is often thought to entail necessitarianism. The argument to this order is found in Bennett (1984, p. 115), and discussed in Della Rocca (2010, p. 9) and Dasgupta (2016, pp. 392–393). A similar argument relying on slightly different principles is introduced in van Inwagen (1983, pp. 202–203). Assume for *reductio* that the PSR holds and that necessitarianism is true. Let C be the conjunction of all true contingent statements, i.e. of all true instances of p such that it is not necessary that p. It is a fact that C. Thus, according to the PSR, there is a fact — and therefore, a true statement E — explaining why it is the case that C. Now, either E is necessary or E is contingent. If E is necessary, the argument goes, so is C. However, this cannot be the case. Indeed, if a conjunction contains at least one contingent conjunct, the conjunction as a whole will be contingent. So, C is contingent. Therefore, E must be contingent as well. Since C is the conjunction of all contingent truths, this means that E must be a conjunct in C. But then, E does not explain C. Therefore, E is not contingent. Thus, E is neither necessary nor contingent. Contradiction.

This argument rests on two main claims. The first claim is that if E explains C and E is necessary, C is necessary as well. This follows from the principle according to which the schema

> If p explains q, then it is necessary that if p is true, q is true

holds for all values of p and q. This principle is plausible. In particular, if the relation of explanation at play here is grounding, the principle has been largely endorsed, although it has its detractors. See e.g. Skiles (2020) for a discussion of these issues.

According to the second claim, if E is a conjunct in C, E does not explain C. Since there is nothing special about E and C here, the idea is more generally that no conjunct can alone explain a conjunction in which it figures. The argument for this claim is often presented along the following lines: if p explains $p \wedge q$, then p must also explain itself (perhaps because p must explain each of the conjuncts in $p \wedge q$). But nothing explains itself (in the sense of 'explains' relevant to the PSR). So, p does not explain $p \wedge q$. I am not sure whether this argument succeeds. In particular, I do not see why p must explain itself if it explains a conjunction in which it figures. Moreover, the claim that nothing explains itself has been attacked (for an overview, see Thompson, 2020, pp. 264–266).

But independently of whether this line of argument succeeds, it is plausible that E does not explain C if E is a conjunct in C. Indeed, in many cases, it is clear that a conjunct alone cannot explain the conjunction in which it figures. Clearly, the fact that Venus is a planet does not alone explain the fact that Venus is a planet and the Sun is a star. I readily admit that not all cases are as clear as this one. For example, it is not completely implausible that 'Venus is a planet' alone explains 'Venus is a planet and something is a planet'. But there is little reason to think that the case of E and C is problematic in this way.

Assuming that the argument just introduced succeeds, the PSR entails necessitarianism. This suggests that a strategy to establish necessitarianism is to show that the PSR is true. For my part, I doubt that this strategy can be successfully carried out, because I doubt that strong enough evidence can be given in favour of the PSR. At any rate, I am unable to provide such evidence.

However, we can also consider the matter from a different angle. As we have seen, the PSR has a certain appeal. But if the PSR does indeed entail necessitarianism, working in a contingentarianism framework forces us to reject this principle. In fact, the assumption that contingentarianism is true is one of the main reasons why the PSR is generally regarded with suspicion in the contemporary literature. By

contrast, necessitarianism allows us to stay neutral about the PSR. Rejecting this otherwise appealing principle is not a cost that the necessitarian is forced to pay.

In this chapter, I have highlighted some of the consequences of working in a necessitarian framework — or at least, in a framework that does not presuppose contingentarianism. It should be clear that working in such a framework allows us to straightforwardly solve (or dissolve) various difficult issues, including issues regarding discernibility arguments and merely possible objects. It should also be noted that adopting necessitarianism has a consequence on the logic of conditionals. Indeed, it has recently been shown that necessitarianism follows from some natural and well-accepted principles about conditionals (Mandelkern & Rothschild, 2021).

Conclusion

In these pages, I have examined the modal question: what could have been otherwise? I have defended a non-standard and controversial answer to this question: nothing. Things could not have been otherwise. That is, nothing could have had different properties than the properties it has, and nothing could have failed to be. More precisely, I have defended necessitarianism, the claim that no c-statement is true.

In its most general form, my argument can be presented as follows.

(A1) There are no good reasons to think that it could have been otherwise.

(A2) There are some good reasons to think that it could not have been otherwise.

(A3) If (A1) and (A2), then it could not have been otherwise.

(A4) So, it could not have been otherwise.

The first premise was defended through chapters V to VII. My aim there was to show that contingentarianism is much harder to convincingly maintain than it may seem at first glance. The second premise was defended in chapters VIII and IX and (less directly) in chapter VII. My goal there was to show that it is easier to maintain necessitarianism than one may think. The third premise is an instance of the schema 'if there are no good reasons to think that p and there are good reasons to think that $\neg p$, then $\neg p$'. I think that most — perhaps all — instances of this schema hold. I have nothing much to say in favour of this claim, except that without it, I am at a loss regarding how to proceed to establish any philosophical thesis. If the reader finds this premise problematic, they can simply drop it and take this book as defending the conjunction of (A1) and (A2), rather than the more ambitious claim that it could not have been otherwise.

Unsurprisingly, much of what I have said in favour of the view that things could not have been otherwise rests on how this view is understood exactly. Remember that necessitarianism (and the modal question

more generally) is primarily concerned with whether things could have had different relations than the ones they have. It is in this perspective that a candidate answer to the modal question was defined as an instance of $\Diamond p \wedge \neg p$, *where* p *is an r-statement*. This specification notably came into play in our discussion of ordinary modal discourse. Also keep in mind that necessitarianism is interested in a particular kind of possibility, namely compatibility with the nature of things, i.e. metaphysical possibility in the neo-Aristotelian sense. This point played a key role in our discussion of bridge views.

My goal in these pages was to present and defend a solution to the modal problem. Because of this, I left aside some topics related to the modal question, but which were not directly relevant to my defence of necessitarianism. For example, I have not discussed how one's view regarding what could have been otherwise may affect one's view regarding how things behave across times (rather than across possible worlds). I have not discussed the links between the modal problem and the free will debate, especially the question of whether (human) agents could have done otherwise. While these are certainly interesting topics, they fall outside the scope of this work.

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