

Modal Realism and Acquaintance

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Declaration

Submitted in fulfilment/partial fulfilment of the requirements for the degree of **MASTERS**, in the Graduate Programme in **PHILOSOPHY**, University of KwaZulu-Natal, South Africa.

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Abstract

All propositions intelligible to us, whether or not they primarily concern things only known to us by description, are composed wholly of constituents with which we are acquainted, for a constituent with which we are not acquainted is unintelligible to us. *Bertrand Russell, 1910.*

This thesis explores modal knowledge. Modal knowledge is such that we are often confounded when we are asked to present justifications for it. This is due to (1) the fundamental role acquaintance plays in the formation of knowledge, and (2) the seeming absence of acquaintance with modal facts. Since modal propositions are intelligible to us, then given Russell's theory, modal propositions are composed wholly of constituents with which we are acquainted despite (2). In this thesis, I argue that we can construct an acquaintance theory for modal facts, and I call such theory 'modal acquaintance'. Since acquaintance is sufficient as justification for knowledge, then our modal knowledge is justified through modal acquaintance.

Chapter 1 introduces modal nihilism and modal scepticism as objections to modal knowledge. It poses the research question, which serves as guide to the analyses and structure of the research and it provides background assumptions. Notable among the assumptions is the adoption of the Lewisian version of modal realism as the theoretical framework of this research.

Chapter 2 focuses on the role of acquaintance in knowledge formation and explains that acquaintance could be understood in two senses. The first is the standard Russellian sense and arguably the one absent by default in any function from this world to possible worlds due to its requirement of sense-data as object. The second is not as rigid as the first in that it allows more entities which are internal to the subject to be objects of acquaintance. Among these internal entities, 'thoughts' were isolated as the closest identifier of modal facts, precisely because the truth of modal thoughts depends on whether or not they correspond to modal facts. This correspondence allows for the construction of modal acquaintance.

Chapter 3 presents accounts of how we have modal knowledge. The presentation begins with Lewis on how we know the contents of his possible worlds. Then, I consider some recent accounts of modal epistemology. The accounts include Yablo and Chalmers in the conceivability camp; Williamson and Hill in the counterfactual camp; and Bealer in the understanding camp.

Chapter 4 explains why acquaintance provides a straightforward way to justifying modal knowledge. Since Lewis urges us to take more seriously the metaphysics of modality than its epistemology, attention shifted to the recent account of modal epistemology. The recent accounts were incorporated into the Lewisian modal realism before identifying which among them contains an account of modal justification. They were all found wanting, hence, modal acquaintance was put forward as a better alternative. The theory of 'threshold' was developed as a cross-world apparatus to enable modal acquaintance to achieve its justification task.

Table of Contents

Declaration	ii
Acknowledgements	iii
Abstract	iv
Table of Contents	v
1 Problem statement	1
1.1 Introduction	1
1.2 Modal nihilism and modal scepticism	2
1.2.1 Modal nihilism	3
1.2.2 Modal scepticism	5
1.3 Research question	10
1.4 Metaphysical and epistemic assumptions	10
1.5 Conclusion	11
2 Knowledge and acquaintance	13
2.1 Introduction	13
2.2 What is acquaintance?	14
2.3 Is acquaintance fundamental to knowledge?	16
2.4 Acquaintance and possible worlds	18
2.4.1 The contemporary senses of acquaintance	19
2.4.2 Modal acquaintance	21
2.5 Conclusion	22
3 The ‘How We Know’ question	24
3.1 Introduction	24
3.2 Lewis’ response to the ‘How We Know’ question	25
3.3 Recent responses to the ‘How We Know’ question	28
3.3.1 The conceivability theorists	28
3.3.2 The counterfactual theorists	32
3.3.3 The understanding theorists	37

3.4	Conclusion.....	39
4	Answering the research question	41
4.1	Recapping earlier chapters	41
4.2	LMR and the recent responses to the ‘How We Know’ question.....	41
4.2.1	LMR and the understanding theory	41
4.2.2	LMR and the counterfactual theories.....	43
4.2.3	LMR and the conceivability theories	44
4.3	Acquaintance and justification	45
4.4	LMR and modal acquaintance.....	48
4.4.1	Threshold	49
4.4.2	Threshold and necessity.....	51
4.4.3	Threshold and other accounts of modal epistemology	53
4.4.4	Threshold and available information	54
4.4.5	Threshold and modal error	56
4.5	Conclusion.....	58
	BIBLIOGRAPHY	60

Chapter 1

Problem statement

1.1 Introduction

The causal connection we have with objects plays a role in our knowledge of them. Some might claim that we have knowledge of objects only because we have this causal connection with them, but that is debatable. However debatable this claim might be, there seems to be an inescapable route for what we know, a route defined by ‘causal connection’. Lewis states; “the trouble is that knowledge requires some sort of causal connection between the knower and the subject matter of his knowledge”.¹

For a long time, modality – our reasoning with possibility and necessity – received no formalization, partly because causal connection is absent and partly because no one really knew what to do with modality. Consequently, after Aristotle dwelt briefly on it, modality did not enter philosophical analysis for a considerable period. Kanger in 1957 (and shortly after him Hintikka in the same year) realized that this could be corrected since modality plays a definitive role in theoretical formulations not only in philosophy but in other disciplines as well. Subsequently, many other philosophers contributed to the formalization of modality. Notable among them was Kripke (1959) who proved a completeness theorem for modal logic, thereby, providing semantics of modal logic. Following on from Kripke, Lewis (1986) with his version of modal realism reduced modal facts to non-modal facts by introducing a realism of possible worlds.

Despite the success of Kripke and Lewis in modal philosophy, the epistemology of modality remained a concern. How we acquire modal knowledge remained a source of scepticism, as it would appear that we do not to require acquaintance with modal objects² in order to have knowledge about them. If this is correct, how do we know the truth-values of modal statements, if ever? What justifies knowledge claims of modalized statements? In his analysis on why the concrete possible worlds of Lewis fail to guarantee modal knowledge, Skyrms (1976) observes that:

If possible worlds are supposed to be the same sorts of things as our actual world; if they are supposed to exist in as concrete and robust a sense as our own; if they are supposed to be as real as Afghanistan, or the

¹ D. Lewis, *On the Plurality of Worlds*, 1986, p. 109.

² ‘Modal objects’ as used in this paper are populations of possible worlds. It is a class term for both possibilities and necessities. I also assume a synonymy between ‘modal objects’ and ‘modal facts’.

centre of the sun or Cygnus A, then they require the same sort of evidence for their existence as other constituents of physical reality.³

Skyrms rightly notes that for modal objects to enjoy the kind of existence Lewis ascribes to them, they require the sort of evidence that guarantees the existence of actual objects. Such evidence is usually a causal connection between the subject and the object. However, we do not have this kind of evidence for modal objects. In other words, we may say, “Since there are no ways to ascertain the existence of modal objects given the lack of empirical evidence, modal knowledge should be taken with the proverbial pinch of a salt”. An extremist view could go further and reject modal knowledge altogether. It might say, “Knowledge needs acquaintance, modal knowledge lacks acquaintance, therefore, there is no modal knowledge”. Consequently, we have modal nihilism and modal scepticism as the positions respectively denying that ‘there is modal knowledge’, and that ‘we can have modal knowledge’. In this introductory chapter, these two positions are critically considered in section 1.2. The problem question, which this research seeks to answer, is formulated in section 1.3 from this critical survey. The background assumptions, which this research will make, are highlighted in section 1.4 and the chapter concludes in section 1.5.

1.2 Modal nihilism and modal scepticism

The concept modality is usually divided into commonsensical and philosophical modality. Commonsensical modality is the everyday usage of modality. Philosophical modality, on the other hand, is the attempt of philosophers at describing the nature, identity, and dependence relations between objects, events or properties used in modal contexts. More strongly, philosophical modality is the outcome of philosophers’ attempts to explain commonsensical modality. This research is concerned with the second – philosophical modality – not the first kind. No one objects to commonsensical modality or deny that we have such knowledge.⁴ The attempt to describe absolute possibilities and necessities perplexes the minds of modal nihilists and modal sceptics.

Consequently, the reservations of the modal nihilists and the modal sceptics revolve around philosophical modality. The worries of the nihilists and the sceptics are founded on the same premise: “perception constitutes the main source of knowledge, and perception only gives us access to what is actually the case, not to what is necessarily the case or what is possibly the case”. Moving on from this premise, the nihilists and the sceptics arrived at two distinct conclusions respectively in that, while the nihilists deny the existence of philosophical modal knowledge, the sceptics deny our ability to have philosophical modal knowledge.

³ B. Skyrms, ‘Possible Worlds, Physics and Metaphysics’, p. 326.

⁴ In my usage, modal nihilism is not ‘modal eliminativism’. Modal eliminativism is the view that modalities are unexplainable and non-truth-conditional. For discussions on modal eliminativism, see S. Blackburn, 1987 and H. Field, 1989. Some (T. Sider, 2003, p. 186) even place Quine (1953) into this category. I found only one mention that comes closest to ‘modal nihilism’. This is in Sauchelli (2012). He calls it ‘global modal scepticism’ and it is supposed to be the sceptical attitude towards *all* our modal beliefs. See, A. Sauchelli, ‘Modal Scepticism, Unqualified Modality, and Modal Kinds’, 2012, p. 404.

To clarify the distinction between the modal nihilists and the modal sceptics properly, the following scenario and its corresponding explanation are offered.

Scenario: There is a tree in Jerry's garden, and the tree is twenty feet tall. Jerry has causal connection with the tree, hence, he knows that the tree is twenty feet tall. Unfortunately, due to the tree's very tall height, it interferes occasionally with the electricity cable passing behind Jerry's house, so that his electricity occasionally trips. Complaining about this problem to his new neighbour John, John said, "If the tree were five feet tall, you would not have had this problem".

Explanation: Either John can explain his statement to Jerry or he cannot. If he can, then he has philosophical modal knowledge because he would be able to explain to Jerry exactly what his statement means. He would be able to explain his statement in non-modal terms. If he cannot explain his statement, then he only has commonsensical modal knowledge, in which case, he cannot explain it in non-modal terms.

On the one hand, the modal nihilists deny the existence of philosophical modal knowledge. For them, all there is to modal knowledge is the commonsensical kind; there is no higher kind with which we explain the commonsensical kind. On the other hand, the modal sceptics only deny that we can have philosophical modal knowledge. Unlike the modal nihilists, the modal sceptics believe that both kinds of modal knowledge exist, but while we can have the first kind, we cannot have the second kind. As far as the modal sceptics are concerned, whatever John says beyond his statement, perhaps as an explanation, is philosophically unimportant.

1.2.1 Modal nihilism

I take the position of Melia (2003) in answering the modal nihilists.

Unfortunately, abandoning modality is not as easy as it might at first seem. Modality is ubiquitous in [...] our scientific and philosophical theorizing. In abandoning the modal we abandon many things that we naturally accept and think of as being trivial or uncontentious...Philosophers who dare to find fault with such natural and apparently uncontentious truths had better have good reason for doing so...Philosophers who abandon such talk and thought find themselves at odds with common sense.⁵

The modal nihilists, if any, are simply confused in denying the existence of philosophical modal knowledge. Melia explains that apart from the pervasiveness of modality in our everyday reasoning, science and philosophical theories also employ modality. According to him, science normally ascribes dispositional properties to various objects, for instance, that salt is soluble, that hydrogen is flammable, and that uranium has a tendency to decay.⁶ These are facts about the

⁵ Melia, *Modality*, 2003, pp. 4-6

⁶ *Ibid*, p. 6.

objects' tendencies or capacities; they are not about how the objects actually are, they are modal facts. In addition, Melia avers that in elementary logic, one of the main concepts is the notion of validity, and the definition provided is traditionally in modal terms. If asked what it is for an argument to be valid, philosophers normally answer, "An argument is valid, if it is *not possible* for the premises to be true and the conclusion false".⁷

If the role of modality, in our everyday reasoning, in scientific and in philosophical theorizations, does not make the modal nihilists rethink their position, the following should. When modality rose to prominence in the second half of the twentieth century, many ancient philosophical problems were resolved.⁸ For example, the positivist movement, with the aid of the verification principle, ruled that metaphysical analyses are meaningless. The verification principle holds that "if a proposition cannot be known or verified or tested, it is meaningless". Intuitively, there seems to be something terribly wrong with this principle, but there was no better way to show this fault, other than labelling the verification principle as a metaphysical principle, which cannot be verified. Unfortunately, a *tu quoque* response to criticisms is fallacious. However, when modality rose to prominence, it became relatively easy to point out that knowability, verifiability, and testability are all modal notions and that their modal characters are essential. By saying their modal characters are essential, we mean the knowable, the verifiable, and the testable cannot be replaced with the known, verified and tested respectively; and obviously, we cannot verify all the knowables, the verifiables and the testables. The verification principle thus failed to verify itself. Without giving a *tu quoque* response, modality provided a better way to show that the verification principle was inherently flawed.

While Melia's position invokes commonsensical rather than philosophical modal knowledge, the case of the verification principle arguably invokes philosophical modal knowledge. Later, in section 1.5, a stronger position is taken that makes a *reductio* out of the sceptic's position who thinks we can only have commonsensical modal knowledge by arguing that commonsensical modal knowledge leads to philosophical modal knowledge. Nonetheless, evidence provided by Melia's position and the case of the verification principle shows that to claim philosophical modal knowledge is non-existent is to eschew many facts about the actual world. Our everyday reasoning, scientific methodology and basic philosophical tasks are replete with modality and there is no explaining their modal character without recourse to philosophical modality. Therefore, to say that the kind of knowledge required for John to explain his modal statement is non-existent is an absurd position. Modal nihilism is absurd.

⁷ Melia immediately makes it clear that anyone familiar with advanced logic would frown at such definition. Such person might give a definition of validity, which eschews modality: "an argument is valid if and only if there is no model M such that the premises are true-in- M and the conclusion is false-in- M ". However, Melia counters that such definition is problematic because (1) it is restrictive to only those languages for which logicians have developed a model theory, and (2) it does not capture the intuitive notion of validity, which makes validity important in the first place. See, *ibid*, p. 7.

⁸ The following example is from Melia (2003). He also highlights five other examples to show how modality helped in the solving of problems and providing analyses that were pivotal in the developmental history of philosophy in the 20th century. See, *Modality*, pp. 8-10.

There is another reason to consider modal nihilism absurd. Modal nihilism claims there is no philosophical modal knowledge because philosophical modal knowledge greatly departs from commonsense since causal connection is not an option.⁹ With recognition to Lewis (1973 and 1986), philosophers now weigh their theories with common sense to determine the costs for holding such positions. Substantiating this point, Melia states, “of course, common sense is not the final arbiter of truth, but a departure from common sense is nevertheless a price to pay for one’s philosophy, and the greater the departure the greater the price. Of course, if it turns out that modality is incoherent or problematic, then, we will have strong reasons for revising our common-sense beliefs”.¹⁰ This move by Lewis, which Melia supports, is excellent, but it presents philosophy as the police of common sense, and here I disagree.

Ladyman and Ross (2007) argue that the ‘at-all-cost’ preservation of common sense will be the death of metaphysics. According to them, science has shown repeatedly that our common sense beliefs are not always correct.¹¹ Thus, the knack to preserve intuition and common sense in metaphysics should be discouraged. Ladyman and Ross are accurate in thinking this despite their canvassing for a naturalized metaphysics, which would not be metaphysics, as we know it. Philosophical modality does not conform to common sense quite comfortably but that does not make it any less reasonable. For more than eight decades, quantum mechanics has remained a philosophical nightmare. Yet, modern scientific experiments have experimentally verified quantum mechanics. Just as quantum mechanics, modality need not align with common sense to be reasonable. The absence of causal connection with the possible five-foot-tall tree and the lack of evidential support for John’s knowledge of the tree are not sufficient for denying the existence of explanations in the form of philosophical modal knowledge for John’s modal statement. Perhaps, if the modal nihilists would find another justification for their position besides the preservation of common sense and intuition, their arguments would be taken more seriously.

1.2.2 Modal scepticism

Modal scepticism¹², on the other hand, is the position that we should not take philosophical modality seriously; that, philosophers ought not to concern themselves with it since modality (in its commonsensical form) is a mundane task. For the modal sceptics, modal knowledge abounds, but we cannot explain how we have it, that is, we cannot have philosophical modal knowledge. To understand the modal sceptics’ grievance against philosophical modality, let us analyse the concept itself. Philosophical modality divides into *de dicto* and *de re* modality. While *de dicto* modality refers to the truth of the whole proposition, *de re* modality refers to a particular thing having some modal properties. By way of illustration: the statement “possibly, the tree in Jerry’s

⁹ Here, I am tacitly responding to those nihilists, if any, that claim not only philosophical modal knowledge is non-existent, but that commonsensical modal knowledge is also non-existent.

¹⁰ *Modality*, p. 6.

¹¹ See, J. Ladyman and D. Ross, *Everything Must Go: Metaphysics Naturalized*, pp. 12-15.

¹² Although Quine was the first to complain about the complications arising from modality in philosophical theorization, it was not until four decades after him that van Inwagen used the concept ‘modal scepticism’. As a result of this, van Inwagen is discussed before Quine in the below analysis. The goal is a systematic presentation of modal scepticism, hence the transposition of historical facts.

garden is five feet tall” is an example of *de dicto* modal statement. It says that the description of a tree being five feet tall is possible. The truth condition of the statement depends on the proposition. Whereas, the statement “the tree in Jerry’s garden is possibly five feet tall” is an example of *de re* modal statement. It says that there is a tree, whose height might possibly be five feet, that is, it is the tree having the modal property. The truth-condition of the statement depends on the tree.¹³ Van Inwagen is discussed for *de dicto* modality, and Quine for *de re* modality.

1.2.2.1 Van Inwagen on *de dicto* modality

Van Inwagen’s (1998) concern lies with the genus ‘possibility’ itself. He states; “...but what is this ‘possibility’ knowledge of which you are sceptical *about*? ... Possible *tout court*. Possible *simpliciter*. Possible *period*.”¹⁴ In his view, the sense of ‘possibility’ used in metaphysical analyses is problematic because it seems impossible to explain what we mean by it.

My own view is that we often do know modal propositions, ones that are of use to us in everyday life and in science and even in philosophy, but do not and cannot know (at least by the exercise of our own unaided powers) modal propositions *that state matters of absolute possibilities*. I have called this position ‘modal scepticism’.¹⁵

According to him, the problem is that, in a bid to explain modal propositions of everyday life together with those of science and philosophy, we construct modal propositions of absolute possibilities, and this attempt is dubious because we cannot know this kind of modal propositions. He furthered that we can only know modal propositions of everyday life. It suffices to say that the modal sceptic has no problem with metaphysical possibilities because he already accepts their plausibility. What he has problem accepting is our knowledge of metaphysical possibilities. What is of importance to the modal sceptic, according to van Inwagen, is not whether John has the knowledge that the tree in Jerry’s garden could be five feet tall (commonsensical modal knowledge), but how John came to the knowledge that the tree could be five feet tall (philosophical modal knowledge).

For van Inwagen, the only candidate-answer is the construction of a possible scenario, according to which the modal claim is true. John would say he knows that the tree could have been five feet tall because he has constructed and examined intellectually a counterfactual scenario according to which the tree is five feet tall. Unfortunately, this only moves the matter a step backward. We now require how John knew that the counterfactual tree is five feet tall in the first place. In order to do this, van Inwagen continues, a second larger scenario, which includes the causal antecedents of the event in the original scenario, would have to be constructed. This is

¹³ This distinction is Sider’s which I find more clear-cutting. “In the *de re* sentence there is a variable in the scope of the modal operator ... that is bound to a quantifier outside the scope of the operator whereas in the *de dicto* sentence no quantification into the scope of modal operators occurs”. According to Sider then, if we take L as representing the tree in Jerry’s garden, and F as the five-feet height of this tree, we can formalize the distinction between *de re* and *de dicto* modal statements as follows. *De re*: $\exists x (Lx \ \& \ \Diamond Fx)$. *De dicto*: $\Diamond \exists x (Lx \ \& \ Fx)$. See, ‘Reductive Theories of Modality’, 2003, p. 183.

¹⁴ *Ibid*, p. 72.

¹⁵ Van Inwagen, ‘Modal Epistemology’, 1998, p. 69. Italics are mine.

because it remained doubtful whether constructing a scenario we knew to be possible would show us how we knew that something involved in the scenario was possible unless we can explain how we knew that the scenario itself was possible.

The problem here is that the second scenario will, in turn, require a larger third scenario to show how the second functions. This third scenario will then require a fourth, which will, in turn, require a fifth, and so the process continues *ad infinitum*. This method of knowing, as van Inwagen points out, is useless in the justification of modal knowledge. Consequently, van Inwagen argues, if this method of knowing is the only option available to us and it is useless, then we can only have basic modal knowledge and we cannot have absolute modal knowledge. As we shall see later in section 3.3.1.1, this method contains a great deal of truth on the issue of modal epistemology, and for that reason, van Inwagen says his modal scepticism is given more strength. According to him, the part of the method that is correct is sufficient to justify modal scepticism since he has sufficiently shown that the method is useless.¹⁶ Consequently, van Inwagen concludes that we cannot have modal knowledge that states matters of absolute possibilities.¹⁷

1.2.2.2 Quine on *de re* modality

For Quine (1953), matters of metaphysical possibilities are incoherent. He argues that *de re* modal contexts are referentially opaque and consequently that quantification into such contexts yields metaphysical incoherence. His argument has two parts. The first part of his argument fleshes out this referential opacity and the second part shows that the absence of any satisfactory ontological basis for *de re* modal predication renders quantification into *de re* modal contexts metaphysically incoherent. Only the first part of his argument is important for the task at hand.

The problem is that truth-value changes when we substitute a proper name with another singular term (a definite description) which refers to the same object within a *de re* modal context.¹⁸ Divers (2007), exhibits Quine's argument.

- | | |
|---|-------|
| (1) 9 is identical to the number of planets | True |
| (2) 9 is necessarily greater than 7 | True |
| (3) The number of planets is necessarily greater than 7 | False |

For Quine, proper names are eliminable features of our language. Thus, if opacity is evident in *de re* modal contexts, it must be manifest at the level of quantification and predication. Thus, by existential generalization on (2)¹⁹ we have:

- (2*) $(\exists x) (x \text{ is necessarily greater than } 7)$.

¹⁶ See, 'Modal Epistemology', pp. 75-77. The 'method of knowing' which van Inwagen picks on was Yablo's (1993), I have skipped mentioning Yablo here only to introduce him later.

¹⁷ Van Inwagen's basic modal knowledge is my commonsensical modal knowledge and his absolute modal knowledge is my philosophical modal knowledge.

¹⁸ See, J. Divers, *Quinean Scepticism about De Re Modality after David Lewis*, 2007, pp. 40-41. The following explanation of Quine is from the simplified analysis of Divers. I have adopted Divers analysis because it follows the *de re* classification of Sider (note 11 above).

¹⁹ (1) is not a modal statement and so, it does not advance Quine's argument. But (3) is a modal statement and so it should yield the same result as (2). Interestingly, it does and it is relatively easy to see how once the argument for (2) is understood.

In finding the truth-value of (2*) we are confounded when we ask which object is necessarily greater than 7. According to (2), that object is '9', but according to (1), '9' is also the object that is 'the number of planets'. But if we say that the object which is 'the number of planets' is necessarily greater than 7, we conflict with the falsehood of (3). When we substitute the definite description 'the number of planets' with the proper name '9' which refers to the same object, the truth-values of the sentence in which we are substituting changes: (3) that was initially false, is now true. Even though 9 is necessarily greater than 7, it is false that the number of planets – which is identical with 9 – is necessarily greater than 7. The argument implies that '9' and 'the number of planets' may not be co-referential in modal context, that is, there is at least one possible world in which they do not refer to the same object.

Returning to the case study – John and the tree in Jerry's garden –, the tree is a longifolia, and like any longifolia, it grows in its full maturity under normal chemical and physical conditions, to a height of at least ten feet and at most thirty feet, approximately. Due to this tall height, the longifolia bends in the wind and interferes with the electricity cable. Applying Quine's argument here, 'the longifolia in Jerry's garden' and 'the tree that bends in the wind' may not be co-referential in modal contexts. That is, in at least one possible world, the longifolia in Jerry's garden and the tree that bends in the wind do not refer to the same object. If there is no certainty that John is referring to the longifolia in Jerry's garden in his modal statement, we might as well claim like the sceptics that John has no philosophical modal knowledge.

1.2.2.3 Synergizing van Inwagen and Quine

Either van Inwagen is used to explain Quine or Quine used to explain van Inwagen. In both cases, the result is a clearer grasp of the problem the modal sceptic wants us to consider. Here, van Inwagen is employed to explain the position of Quine. For van Inwagen, John could only have philosophical modal knowledge that the longifolia in Jerry's garden could be five feet tall if he had intellectually constructed and examined a scenario according to which the longifolia is five feet tall. The Lewisian modal realism (hereafter as LMR), explains how this is possible. According to LMR, this constructed scenario is a situation in a concrete possible world, and this possible world is a counterfactual to the actual world. In this possible world, there is a concrete longifolia, which is five feet tall, and the five-foot-tall longifolia is similar to the actual-longifolia in so many ways that it qualifies as a counterpart of the actual-longifolia.²⁰ Using the notion of counterparts, modal properties are indexed to counterparts in possible worlds so that actual objects may have properties they do not have in actuality. Thus, the modal property of the actual-longifolia being five feet tall is indexed to the counterpart-longifolia in the possible world.

A clearer understanding of Quine would be as follows. The possible world, which has the intellectually constructed scenario of John as part, might be that world in which the tree in Jerry's garden and the tree that bends in the wind are not co-referential. Stated differently, if the actual-longifolia is the tree that bends in the wind, and the counterpart-longifolia may not be the tree that bends in the wind, then the counterpart-longifolia and the actual-longifolia may not be

²⁰ 'Counterpart Theory and Quantified Modal Logic', 1968, pp. 114-115; 'Counterpart of Persons and their Bodies', 1971, pp. 205-206; *On the Plurality of Worlds*, 1986, p. 88.

the same objects. If this claim is plausible, then any inference that John could have made from his non-modal knowledge of the counterpart-longifolia to the philosophical modal knowledge about the actual-longifolia is dubious. By implication, John does not have the philosophical modal knowledge that the actual-longifolia could have been five feet tall.²¹ In this way, Quine's position seems fatal to modal epistemology. Nevertheless, the same counterpart-theoretic analysis of Lewis is the key to a solution.²² For Lewis, the actual-longifolia and the counterpart-longifolia are after all, not the same trees because counterpart relation is not an identity relation; it is a similarity relation. Thus, if John knows about the counterpart-longifolia, then given the close similarities between the counterpart-longifolia and the actual-longifolia, he can make valid inferences from the counterfactual to the actual. Having made this inference, John knows that the actual-longifolia could have been five feet tall. However, following the delimitations of LMR which holds that possible worlds are isolated,²³ van Inwagen's initial concern surfaces again: how does John know about the counterpart-longifolia in the first place?

According to LMR, possible worlds are isolated from one another and from the actual world. Thus, John does not know about the counterpart-longifolia given the causal and spatiotemporal isolation of worlds from one another. This means that the causal history of the counterpart-longifolia, which led to its five feet height, is disconnected from what happens in our world and in any other possible world. Faced with this difficulty, we are back to where we began; the inescapable route of causal connection, which is absent in any function from this world to all Lewisian concrete worlds. If John could not have traveled to the possible world where the counterpart-longifolia exists, and neither could he have had any link, to the causal history of the counterpart-longifolia's five feet height, then how did he know that the counterpart-longifolia is five feet tall? Thus, the modal sceptics claim that if John cannot explain how he came about this non-modal knowledge about the counterpart-longifolia then he surely cannot infer from the non-modal knowledge to the modal proposition about the actual-longifolia in Jerry's garden.

While van Inwagen implicitly consented to the plausibility of metaphysical possibilities but denied our knowledge of them, Quine went a little bit further to demonstrate how metaphysical possibilities are incoherent. If, according to Quine, metaphysical possibilities are incoherent, then, according to van Inwagen, it is logical that we cannot have philosophical modal knowledge, which states matters of absolute possibilities. Together, van Inwagen and Quine ask: "How do we have philosophical modal knowledge?" How does John know about the counterpart-longifolia? Therefore, unlike modal nihilism, we should take modal scepticism seriously.

²¹ One must pay attention to what the modal sceptics claim John lacks: he lacks the philosophical modal knowledge that the actual-longifolia is the same tree as the counterpart-longifolia with which he might explain his statement that the actual-longifolia could have been five feet tall. The modal sceptics do not claim John lacks the commonsensical modal knowledge that the actual-longifolia could have been five feet tall.

²² See, Lewis, 1971 and Divers, 2007.

²³ See, *On the Plurality of Worlds*, p. 78.

1.3 Research question

The leading question asked is:

Given the intelligibility of modal propositions; what is the acquaintance that we need?

Russell states, “All propositions intelligible to us, whether or not they primarily concern things only known to us by description, are composed wholly of constituents with which we are acquainted, for a constituent with which we are not acquainted is unintelligible to us”.²⁴ This means that if philosophical modal propositions are intelligible to us, then they are composed wholly of constituents with which we can be acquainted. However, as we have seen from chapter 1, the modal nihilists and modal sceptics are troubled because modal knowledge lacks acquaintance, thus, modal knowledge, especially the philosophical kind, is unintelligible. Modal nihilism was dismissed and modal scepticism was deemed a legitimate objection to philosophical modal knowledge. Having realized that modal scepticism should be taken seriously, acquaintance as a concept in epistemology needs proper analysis.

If ever, we are to have acquaintance with modal facts, modal facts have to be real. Here, we adopt the Lewisian version of modal realism. Since acquaintance is in essence a justification account, it is useful to consider whether or not, Lewis gave any theory of modal justification in his modal realism. Chapter 3 begins with the analysis of Lewis’ view on modal epistemology. For him, he is more certain of what he knows about metaphysical possibilities than how he knows. It is fair to say his argument though compelling does not address the question of how we know. I look at some recent accounts of modal epistemology, to ascertain which among them offers a sufficient theory of modal justification. Chapter 4 asserts that none of the recent accounts achieves this goal. Their inability was due to the lack of a cross-world apparatus, which sustains the identity between modal facts and modal thoughts. This cross-world apparatus is then explained as ‘threshold’ and with threshold, modal acquaintance succeeds where the recent accounts fail.

1.4 Metaphysical and epistemic assumptions

This research makes the following assumptions.

Possible worlds are real. They are independent of our thought about them. These worlds exist in logical space and there is a plenitude of them. Building on Stalnaker’s (1988) acquiescence when he stated “Lewis is right, I think, that if we reject modal realism, then we must give up on the project of providing a reductive analysis of modality”,²⁵ I follow Sider (2008) in holding that only LMR produces a respectable reductive account of modality because concrete worlds are non-modally defined.²⁶ In the analysis offered in this study, it is assumed that LMR presents the correct account of what we know about metaphysical possibilities.

²⁴ ‘Knowledge by Acquaintance and Knowledge by Description’, p. 125.

²⁵ R. Stalnaker, ‘Critical Notice of David Lewis, On the Plurality of Worlds’, 1988, p. 123.

²⁶ ‘Reducing Modalities’, 2008, p. 1. Sider’s goal in the paper was to produce a reductive analysis of modality, which makes no recourse to possible worlds but rather locates modality, somehow, in linguistic convention.

In these worlds, there are ‘real particulars’, that is, inhabitants of worlds are themselves concrete. These may include sentient beings such as humans and animals, and non-sentient beings such as tables, trees, chairs, time, space and so on. These are regarded as ‘objects’, and ‘things’ is reserved for anything whatever that is not a particular, avoiding where possible the use of ‘things’. If there are forces that we are familiar with in the actual world, then these forces too are objects. Propositions, numbers, events and facts are likewise objects.

As explained above, there is a fine demarcating line between *de dicto* and *de re* in that there might appear a little bit of confusion about what counts as *de dicto* modality and what counts as *de re* modality. This work takes the position that *de dicto* modality is ultimately reducible to *de re* modality. Plantinga gives two methods of collapsing *de re* and *de dicto* modalities into one another. The first way reduces the former into the latter,²⁷ and the second way reduces the latter into the former.²⁸ The second way aids the attempt to reduce *de dicto* modality into *de re* modality in this research. The method here is simple enough: a *res* (the object a *de re* modal claim, to which we are attributing modality) could also be a proposition.²⁹ This is because, in the sense in which ‘object’ is used here, propositions are objects. Let us return to the example used earlier in note 11 to illustrate a *de dicto* modal statement in the demonstration of how this reduction works. $\Diamond \exists x (Lx \ \& \ Fx)$: “possibly, the tree in Jerry’s garden is five feet tall”. The *res* here is the proposition ‘the tree in Jerry’s garden is five feet tall’, and the property ascribed to it will be the modal property ‘possible’.³⁰ Thus, even though this is an example of a *de dicto* modal statement, it has been reduced to a *de re* modal statement, once the proposition assumed the role of a *res*.

For clarity sake, it is assumed that in talking about knowledge all issues regarding belief and justification have been covered. For example, only foundationalism concerning knowledge is discussed; the study does not discuss foundationalism concerning belief or justification. Except otherwise stated, when I use ‘modal knowledge’, I mean ‘philosophical modal knowledge’. When I intend to refer to commonsensical modal knowledge, I would emphatically say so, and when I do this, I use ‘philosophical modal knowledge’ instead of ‘modal knowledge’ to visualize the contrast between them.

1.5 Conclusion

The arguments of the modal nihilists lead to absurdity if we accept them. We cannot afford to affirm the non-existence of philosophical modal knowledge because we would then have to reject most of what we have come to accept as basic facts about our world, thus, we might not take the modal nihilists seriously. However, we cannot ignore the modal sceptics. The modal sceptics agree that modality is an important aspect of our everyday reasoning, but denies that modality has a place whatsoever in philosophy. Some might ask what we have to lose if we also ignore the modal sceptic, but the fact is, we will have much to lose.

We have much to lose because commonsensical modal knowledge ultimately leads to philosophical modal knowledge so that if we ignore the modal sceptics, we inadvertently, accept

²⁷ Plantinga, ‘De Re et De Dicto’, 1969, pp. 247-258.

²⁸ Plantinga, ‘Actualism and Possible Worlds’, 1976, p. 148.

²⁹ See, T. Sider, ‘Reductive Theories of Modality’, p. 184.

³⁰ This joins perfectly with Sider’s distinction between *de dicto* and *de re* modality, which I adopt. See, note 11.

we are incapable of having philosophical modal knowledge. The position of van Inwagen that only the commonsensical modal knowledge is available might seem a reasonable place to stop, but we are not safe with van Inwagen's position. Commonsensical modal knowledge as used by van Inwagen is the knowledge gained from modal statements which are simple and obvious, whose truth we are in a position to know. Nevertheless, when van Inwagen asks himself how we know the truth of these simple and obvious modal statements, he answers, "I do not know how to answer these questions".³¹

There no explanation (as van Inwagen himself admits) that is sufficient for how we know the truth of modal statements without the possible-worlds semantics. It appears that there will always be a return to the possible-worlds framework if we are to explain even our commonsensical modal knowledge. If this is the case, then commonsensical modal knowledge entails philosophical modal knowledge. Bealer (2004) states this entailment thesis differently when presenting how he uses 'could' in his theory of how we can err in our modal belief. According to him, Kripke already gives a satisfactory content of 'could' and his account preserves that content. This Kripkean content of 'could' is that when we use 'could' with any fact p , we mean p is epistemically possible, and p is epistemically possible if and only if, some p^* is metaphysically possible, where p^* is a counterpart p . Bealer draws from this Kripkean content of 'could' that the epistemic possibility that p entails the metaphysical possibility that some counterpart of p is true.³²

Bealer encapsulates the reason we are not in a more advantageous position with van Inwagen's position. If we become comfortable with the idea that only commonsensical modal knowledge is available and reject philosophical modal knowledge, it is tantamount to removing the ground upon which we are standing. That is, since there is no commonsensical modal knowledge if there is no philosophical modal knowledge, rejecting philosophical modal knowledge translates into rejecting commonsensical modal knowledge. Ultimately, this kind of position renders all of us modal nihilists and as shown, modal nihilism is absurd. Consequently, *pace* van Inwagen, we have philosophical modal knowledge and we depend on philosophical modal knowledge for our commonsensical modal knowledge.

³¹ Van Inwagen, 'Modal Epistemology', pp. 73-74.

³² Bealer, 'The Origin of Modal Error', 2004, p. 17.

Chapter 2

Knowledge and acquaintance

2.1 Introduction

Mary the scientist, is released for the first time from her black-and-white room after many years of education through black-and-white books and black-and-white television with which she acquired all physical facts about the world. Upon stepping outside, she encounters a red tomato growing outside her room and she exclaims “Oh my goodness! This is beautiful. It is not black or white; what is it?” But why did Mary exclaim if she already had all physical facts about the world through her black-and-white books and television? She should just say “Oh well, I know this colour, it is red”, that is, her experience of the redness of red should not add anything to her oeuvre of knowledge. Mary exclaimed because she had for the first time an unmediated and direct experience of an external object and its properties.¹

In the paper where this thought experiment was formulated, Jackson (1982 and 1986) unreservedly uses the verb ‘know’ to describe the status of Mary’s cognition, but that was because his concern was not with the epistemological status of the content of Mary’s cognition, but with physicalism. For Jackson, Mary *knows* all there is to know about the physical facts of the world but she nonetheless learns something new upon her release.² To the contrary, Russell (1910) and many acquaintance theorists, would say Mary does not *know* anything at all for that matter; that she began to know something when she came in direct awareness of external objects. According to these acquaintance theorists, we have knowledge only by having *acquaintance* with objects, where acquaintance is the relation we have with objects that we cannot analyse into any less problematic concepts.³ The strength of the acquaintance theorists’ position is that it appeals to foundationalism in knowledge justification.

Foundationalism is of the view that if there is justified belief then the evidential chain of each justified belief terminates in a justified basic belief. For the acquaintance theorists, the direct awareness, which Mary had with the tomato, is a justified non-inferential basic belief. The plausibility of foundationalism makes acquaintance an important concept in any epistemology. Thus, this chapter critically examines the nature of acquaintance and the role it plays in knowledge formation. In section 2.3, following Russell, I argue that acquaintance is fundamental

¹ The above statements of Mary are not part of Jackson’s paper. They are included here to show the importance of acquaintance as the unmediated and direct experience of an object. In fact, Jackson’s claim was that Mary knows what and how red looks like, which is directly opposed to the above statements.

² Jackson’s concern was that physicalism is not a complete thesis because it leaves out qualia. Qualia are things like the hurtfulness of a pain, the itchiness of itches, pangs of jealousy, or about the characteristic experience of tasting a lemon, smelling a rose, hearing a loud noise or seeing the sky. See, F. Jackson, ‘Epiphenomenal Qualia’, 1982 and ‘What Mary didn’t Know’, 1986.

³ R. Fumerton, *Metaepistemology and Scepticism*, 1995, p. 76.

to all knowledge claims. In section 2.4 the question is raised whether acquaintance ought to apply to modal statements couched in the possible-worlds framework. Basing this argument on one of the features of acquaintance, which says the object with which we have acquaintance must exist, the answer is in the affirmative.

2.2 What is acquaintance?

Acquaintance as a concept in epistemology originates from Bertrand Russell. According to him, acquaintance is the two-termed relation with which we explain the obvious character of experience. Acquaintance is to be in direct awareness, to be without the intermediary of any process of inference, to stand in a direct cognitive relation with the object.⁴ We revisit the case of John and the longifolia in Jerry's garden to illustrate this. In the presence of the longifolia, John is acquainted with the sense-data that makes up the appearance of the longifolia, namely its colour, shape, hardness, height, and so forth. John is acquainted with all the data he is immediately conscious of when he sees and stands before the longifolia. Thus, the sense-data, which make up the appearance of the longifolia, are things with which John has acquaintance.

Acquaintance as a cognitive relation is not the sort of relation that constitutes judgment, but the sort that constitutes presentation. John is not making any judgment about the longifolia through his acquaintance with the sense-data that make up the longifolia's appearance; rather, the sense-data that make up the appearance of the longifolia simply present themselves to John. Consequently, acquaintance in the Russellian sense is primitive and has sense-data as its object. Furthermore, Russell states that we can be acquainted with universals in the same manner we are acquainted with particulars. This for him explains why 'sense-data' are respectable 'objects' of acquaintance. He maintains that; "it is possible, without absurdity, to doubt whether there is a table at all, whereas it is not possible to doubt the sense-data" *we get from the table*.⁵ In another instance, he states, "we have acquaintance with sense-data, with many universals ... but not with physical objects or other minds".⁶

Acquaintance is non-judgmental and non-propositional,⁷ that is, to be acquainted with something is to be aware of it in a way that does not essentially involve being aware that it is so-and-so.⁸ According to Russell, to be aware that the object is so-and-so is rather to be referred to as *knowledge by acquaintance*. Knowledge by acquaintance occurs when the subject has an immediate or unmediated awareness of some propositional truth based on being in direct acquaintance with the object. John is directly acquainted with the longifolia in Jerry's garden through the sense-data of his experience of the longifolia, but he *knows* by direct acquaintance

⁴ See, 'Knowledge by Acquaintance and Knowledge by Description', 1910, p. 108; *The Problems of Philosophy*, 1912, p. 72; 'On the Nature of Acquaintance. III. Analysis of Experience', 1914, p. 453.

⁵ Russell, *The Problems of Philosophy*, p. 72. Italics are mine.

⁶ 'Knowledge by Acquaintance and Knowledge by Description', p. 115.

⁷ W. Sellars (1956) in what is now known as the Sellarsian dilemma, challenged the existence of a justified basic belief, which the acquaintance theorists posit to be realized in acquaintance. T. Poston (2007, p. 343) presents a summary of the Sellarsian dilemma; "For assuming basic beliefs are justified by some experience, that experience either has propositional content or it does not. If the experience does not have propositional content, then it does not justify the belief. But if the experience has propositional content then a further reason is required for thinking that the content is accurate or correct." Davidson (1983), McDowell (1994) and Williams (2005) present sophisticated versions of the argument.

⁸ A. Hasan, 'Knowledge by Acquaintance Vs Description', 2014.

(through the sense-data of his experience of the longifolia) that the longifolia is twenty feet tall. This distinction, though weak is important.

If 'direct awareness' is essential to acquaintance, then the subject cannot be acquainted with something that does not exist. Thus, in a sense, acquaintance guarantees the existence of its object. The requirement of existence for the object makes the distinction between acquaintance and knowledge by acquaintance more rigid. While we cannot have acquaintance with something that does not exist, we can, on the other hand, make judgments and form concepts for things that do not exist.⁹

Acquaintance does not only explain how knowledge is possible, it also explains how thought is possible. According to Russell, whenever we form thoughts, the components of those thoughts are items, with which we are acquainted, that is, the identity of a singular thought depends on the identity of the object of acquaintance. Russell maintains that every proposition, which we can understand must be composed wholly of constituents with which we are acquainted.¹⁰ This means that acquaintance restricts our thought content. To illustrate this, suppose John just moved into the neighbourhood, and has not been to Jerry's garden. When Jerry visited John at his home to welcome him into the neighbourhood and then complains that the longifolia in his garden obstructs the electricity cable, what would John say?

If John had been acquainted with longifolias in the past, he need not ask how tall this particular longifolia is. All he needs to do is make inference and judgment about the specific longifolia in Jerry's garden. But suppose John has never before been acquainted with a longifolia; he has never seen one in reality or on television, never read about one, never heard about one. What would he say then? He would ask Jerry for a description of this tree, and every evidence points to the fact that Jerry's description would not even satisfy John's curiosity. John would visit Jerry's garden to get acquainted with the longifolia. Until John does this, he cannot have singular thoughts about the longifolia in Jerry's garden. He would have difficulty in convincing anyone that he is having singular thoughts about a longifolia, a tree with which he has never been acquainted.

If acquaintance is not itself judgmental and not propositional, then it does not have propositional content. Acquaintance is a form of awareness *of* something, not awareness *that* something is so-and-so.¹¹ It is neither true nor false that the longifolia in Jerry's garden presents itself to the sensory receptors of John: this is acquaintance. It is, however, true or false that the longifolia which John is now acquainted with is twenty feet tall or its leaves are green or that it bends in the wind: this is knowledge by acquaintance. Stated differently, while acquaintance does not have propositional contents, knowledge by acquaintance does. There is nothing between John and his experience of the longifolia; his acquaintance with the longifolia is not composed of further relations. Acquaintance is a simple and unanalysable relation.

The reliability of John's beliefs also does not affect his acquaintance with the longifolia in Jerry's garden. Whether or not he has some beliefs, which may strengthen or reject his experience of the longifolia has nothing to do with his acquaintance with the longifolia. For example, if John reliably believes that his senses deceive him more often than not, and because

⁹ Hasan, *ibid.*

¹⁰ *The Problems of Philosophy*, p. 94.

¹¹ Hasan, 2014.

of this belief, he is sceptical about what he perceives; his acquaintance with the longifolia is not affected by the fact. These reliable beliefs may, however, help John in deciding whether the data he receives from his acquaintance with the longifolia are true or false, that is, whether the data correspond with his beliefs. If the data correspond with his beliefs, then they are true, and if they do not, then they are false. Reliability is neither a necessary nor a sufficient condition for acquaintance because acquaintance is not by itself an epistemic relation.¹² Therefore, acquaintance is a form of awareness of the most direct and most secure kind that is fundamental to our cognitive capabilities because it appears to be a straightforward way to justifying our beliefs.

2.3 Is acquaintance fundamental to knowledge?

To stop infinite regress in epistemic justification, foundationalism is the best option. According to foundationalism, we have some non-inferential knowledge, and any inferential knowledge we have, depends ultimately on this non-inferential knowledge. Thus, let us say that subject *s* has inferential knowledge that *p* when *s* knowledge that *p* depends on *s* knowledge of some other proposition(s) from which *s* can legitimately infer *p*, and *s* has non-inferential knowledge that *p* when *s* knowledge that *p* does not depend on any other knowledge *s* has in this way.¹³ Many epistemologists argue that it is better to think that we have this sort of non-inferential knowledge upon which all our knowledge is inferred and which is not itself inferred from any other knowledge. To say otherwise that we do not have this sort of non-inferential knowledge upon which all our knowledge is inferred, is to say that there is an infinite regress in epistemic justification.¹⁴ Perhaps, the intuitive absurdity, which this claim implies, is why many epistemologists favour foundationalism.

One way, probably the most widely used and plausible way to pinpoint this sort of non-inferential knowledge is to point to acquaintance. Hasan (2014) states, “knowledge by acquaintance is foundational knowledge because it depends on one’s acquaintance with the object itself, or with properties of or facts about the object, and not on any further knowledge of truths”.¹⁵ However, knowledge by acquaintance is not the only way we could have knowledge of things. If we can only know things through knowledge by acquaintance, our knowledge would be more restricted than it is. We also acquire knowledge of physical objects through *knowledge by description*.

According to Russell, knowledge by description is the knowledge we have of physical objects when we are not directly aware of them. Here, reference is made to the hypothetical situation of John not having being to Jerry’s garden and yet is able to make judgment about the longifolia in Jerry’s garden because he has been acquainted with longifolias in the past. That was

¹² Poston, 2007, p. 342 and Fumerton, 1995, p. 77.

¹³ Hasan, *ibid*.

¹⁴ I take it that coherentism, which is standardly situated in between foundationalism and infinitism, is simply a gloss over foundationalism, and as such, a form of foundationalism. Coherentism claims that every evidential chain of knowledge justification terminates in a coherent set of beliefs. But this begs the question in that how can this coherent set of be the terminus of justified knowledge if they are not (taken together as a whole or individually) basic non-inferential and justified beliefs. If this is correct, then the coherent set of beliefs is simply the foundation of our inferential beliefs, and that is exactly what foundationalism is about.

¹⁵ *Ibid*.

a case of knowledge by description. John knows a description and he knows the object, which the description applies to, even though he is not directly aware of the object at the time. The seemingly obvious difference that sets knowledge by acquaintance apart from knowledge by description is that in the former, acquaintance is active and in the latter, it is passive. The subject is directly aware of the object in knowledge by acquaintance, whereas the subject is not directly aware of the object in knowledge by description. But where does the description the subject knows come from? For instance, when someone mentions Pegasus, we can have singular thoughts about it even though we have never been directly aware of such a creature, even though the description of Pegasus we know does not depend on anyone's direct awareness of Pegasus ever in history. We pick this up in section 2.4.

According to Russell, knowledge of things is not the only kind of the knowledge we have. Beside knowledge of things, we also have *knowledge of truth*. Knowledge of truth, according to Russell, is the knowledge generated through the correspondence between our beliefs and facts about those beliefs. Unlike knowledge of things, knowledge of truth could be erroneous. In knowledge of things, it is either we know so-and-so through our acquaintance with a certain object, or we do not; there is no room for error. In knowledge of truths however, since we could hold some erroneous beliefs, which in our minds would have the same vigour as when those beliefs were not erroneous; knowledge of truth is knowledge that is opposed to error. Thus, rather than knowing that something is so-and-so as with knowledge of things, we know that something is the case with knowledge of truth.

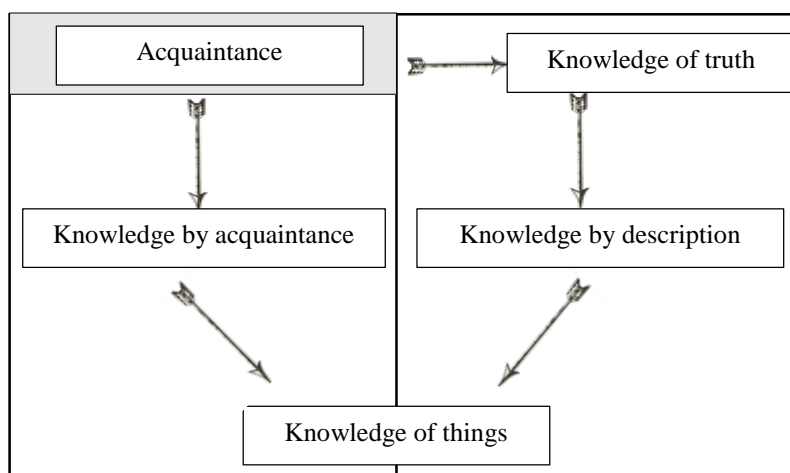
In this way, knowledge of truth plays the role of benefactor by supplying the evidence needed in order to accept an incoming belief as knowledge. The curious thing is that while this role is clear with regard to the knowledge acquired by description, it is not so clear with knowledge acquired by acquaintance. Emphasizing this point, Russell explains;

Knowledge of things, when it is of the kind we call knowledge by acquaintance, is essentially simpler than any knowledge of truths, and logically independent of knowledge of truths, though it would be rash to assume that human beings ever, in fact, have acquaintance with things without at the same time knowing some truth about them. Knowledge of things by description, on the contrary, always involves ... some knowledge of truths as its source and ground.¹⁶

The inability of Russell to separate knowledge of truth from knowledge by acquaintance completely is because knowledge of truth also depends on acquaintance. It seems farfetched to suppose that if Mary had no television, that she only had books with no pictures; that she would be able to conceive of objects in the same manner as we do. Maybe she will have an idea of what physical objects look like, but her conception of these objects may not be the kind we have, because we, unlike her, are acquainted with these objects. Knowledge of truth therefore depends on acquaintance. In Russell's words, "all our knowledge, both knowledge of things and knowledge of truth, rests upon acquaintance as its foundation".¹⁷

¹⁶ *Ibid*, pp. 72-73.

¹⁷ *Ibid*, p. 75.



As a form of concluding remark for this section, we could say that it is not only the case that acquaintance (i) explains how knowledge is possible and restrict what we know, and (ii) explains how thought is possible and restrict what we can think of, it is also (iii) fundamental to *almost* all we know, (iv) sufficient in the formation of knowledge, because (v) it plays an important role in epistemic justification, so that (vi) in it, we have a straightforward way to justification for knowledge.

2.4 Acquaintance and possible worlds

Acquaintance is a sufficient and not necessary condition for the formation of our knowledge of objects. Earlier in section 2.3, Pegasus was used to explain how it could become problematic for us to have knowledge by description when no one has ever been acquainted with the object. But we have singular thoughts about Pegasus despite the lack of acquaintance with it ever in history (disregard the toy versions). Let us see where the description of Pegasus originates.

The description we know of Pegasus originates from our conventional acceptance of a certain kind of non-physical object, created in the imagination of a poet, such that the inferred meaning when anyone uses ‘Pegasus’ is the content of the poet’s imagination. The fictional animal according to the anonymous poet in familiar terms would be a white-winged horse. In this way, no one can say by ‘Pegasus’ he or she means something else other than a white-winged horse. Thus, even though we are not acquainted with Pegasus because it does not exist, we can know about it through knowledge by description, provided we already have a description. Given the flowchart of acquaintance in section 2.3, knowledge by description also depends on acquaintance, thus, how acquaintance helps in the formation of our knowledge by description of Pegasus needs explanation.

In chapter 1, we saw that the domain of existing objects transcends the world in which we inhabit. We saw that objects in possible worlds also exists, albeit non-actually. Under that notion, we may say Pegasus does not exist in our world, but it does exist in a possible world. Consequently, since existence is a criterion for acquaintance, and there are non-actually existing objects like Pegasus, then the domain of objects with which we can be acquainted, includes both the actually existing and the non-actually existing objects. In this way, interpreting Russell in a

manner that suggests, “we are *unable* to have acquaintance with Pegasus because Pegasus does not exist” is mistaken. Russell was not as equipped as we are today with modality and the possible-worlds semantics, thus, any interpretation, which excludes non-actually existing objects from the domain of acquaintance, fails to keep up with the progress in philosophical theorization. With modality and possible-world semantics at our disposal, we are enabled to reframe such interpretation: “we are *able* to have acquaintance with Pegasus because Pegasus exists, albeit in a possible world which is not actual”. Thus, joining the flowchart as another kind of knowledge that depends on acquaintance is our modal knowledge.

Acquaintance with modal objects requires clearer explanation. According to LMR, the causal isolation of possible worlds from the actual world blocks acquaintance in the Russellian sense with non-actually existing objects. This is so because the Russellian sense of acquaintance requires the object’s ability to produce sense-data, and modal objects do not produce any sense-data. Russell himself allows the extension of the object of acquaintance beyond sense-data. He states; “Sense-data, as we have already seen, are among the things with which we are acquainted; in fact, they supply the most obvious and striking example of knowledge by acquaintance. But if they were the sole example, our knowledge would be very much more restricted than it is”.¹⁸ To be exact, Russell himself considers other examples of objects of acquaintance, namely, memory, introspection and self-consciousness.¹⁹ It is not surprising then that contemporary acquaintance theorists are not so interested in sense-data as the object of acquaintance as they focus on some other entities that are internal to the subject, such as properties, facts, relations, sensation, thoughts, truth-makers, and so on. Since the Russellian account of acquaintance is well known for its preference of sense-data as object of acquaintance, I will henceforth distinguish it from the contemporary theories accounts.

2.4.1 The contemporary senses of acquaintance

Few definitions of acquaintance by these contemporary theorists will put matters in perspective.

- Fumerton (1995): Acquaintance is not another intentional state to be construed as a non-relational property of the mind. Acquaintance is a sui generis relation that holds between a self and a thing, *property*, or a *fact*.²⁰
- Fumerton (1995): [...] one is *acquainted* with the *fact* that *P*, the *thought* that *P*, and the *relation of correspondence* holding between the thought that *P* and the fact that *P*.²¹
- Bonjour (2001): acquaintance is a ‘built-in’ feature that is intrinsic to conscious or experiential states, so that it is not a relation between the self and something else, but is an intrinsic feature of the mental state itself.²²
- Hasan (2014): acquaintance is simple and unanalysable. We can point to acquaintance by describing it in some revealing way that is unique to it, for example, the relation a subject has with the *sensation* of pain.²³

¹⁸ *The Problem of Philosophy*, p. 75.

¹⁹ *Ibid*, pp. 75-76.

²⁰ *Metaepistemology and Scepticism*, p. 74. Italics are mine.

²¹ *Ibid*, p. 75. Italics are mine.

²² ‘Towards a Defence of Empirical Foundationalism’, p. 31. Italics are mine.

²³ ‘Knowledge by Acquaintance Vs Description’. Italics are mine.

From these definitions, we see that Russell's suggestion that "we have therefore to consider acquaintance with other things besides sense-data if we are to obtain any tolerably adequate analysis of our knowledge" has been harkened to. Such entities that are internal to the subject as facts, properties, thoughts, truth-makers, sensation, and relations have received sufficient theorizations on how they, like sense-data, could be objects of acquaintance. Since the goal here is to explain how we are acquainted with modal facts, we need to establish which among these internal entities most closely identifies modal facts. On the above list of internal entities, 'thoughts' seem to be the *closest identifier* of modal facts. S^* is the closest identifier of S if and only if in domain D , S needs to be explained but S is absent and no other entity in D is closer to S than S^* . One major reason for this is trivially that all we have to show for modal facts are thoughts about them and more importantly, the nature of thoughts does not conflict with the nature of modal facts when we say thoughts most closely identify modal facts. Besides 'thoughts' in the listed internal entities, only 'properties' rival 'thoughts' as the closest identifier of modal facts. Arguably, sensations, truth-makers and relations less closely identify modal facts than properties and thoughts. However, unlike thoughts, the nature of properties conflicts with that of modal facts when we refer to properties as the closest identifier of modal thoughts.

The 'closest identifier' argument is aimed at locating which among those entities that are internal to the subject can be said to be the subject's evidence that he has modal beliefs. Properties can be characterized both as predicables and as exemplifiabiles. As predicables, properties are those entities that can be attributed (or predicated) of things, for example, if we say that the thing on the table is red and is an apple, we attribute the properties 'red' and 'apple' to it. As exemplifiabiles, properties are entities, which things are said to bear or possess. If the attribution of 'red' and 'apple' to the thing on the table is true (or more appropriately, veridical), then the thing in question exemplifies the properties of 'red' and 'apple'. Properties appear in their capacity as predicables on the above list of internal entities. In their capacity as exemplifiabiles, properties do not count as internal entities because they have to be mind-independent before they could be exemplified.²⁴ Now, according to the modal realists, modal facts are mind-independent. As such, to isolate properties as the closest identifier of modal facts will be correct just in case we mean properties, in their capacity as exemplifiabiles. However, 'closest identifier' roughly defined above is non-compossible with properties, in their capacity as exemplifiabiles; it is only compossible with properties, in their capacity as predicables. Thus, when we isolate properties as the closest identifier of modal facts, the nature of properties conflicts with the nature of modal facts because we would have to isolate properties in their capacity as predicables.

According to Fumerton, thoughts are non-relational properties of a mind, whose presence is logically distinct from, though no doubt causally dependent on, brain states. Thoughts may be true or false. When they are true, they correspond to facts, and when they are false, they fail to correspond. On the other hand, facts are non-linguistic complexes that consist in entities exemplifying properties such that worlds contain facts long before they contain minds and

²⁴ Analysis of property here is due to Orilia and Swoyer, 'Properties', 2016.

thoughts.²⁵ It is important to emphasize that the causal dependence of thoughts on brain states is innocuous to the reason thoughts were isolated as the closest identifier of modal objects. No doubt, thoughts are formed when brain states interact, hence their causal dependency on brain states, but that is not the causal relation or lack thereof, which makes thoughts the closest identifier of modal facts. Thoughts are not causally dependent on the facts with which they correspond or fail to correspond. It would be preposterous to say the fact, with which a given thought corresponds, somehow “directly” caused the thought. I have the thought of writing this paper, but the fact that I am writing this paper is not in any way the cause of that thought. I can still have the thought of writing this paper even though I am writing a different paper or no paper at all. I may well have never written any paper in my life and still have the thought of writing this paper, perhaps, after reading it. Thus, facts do not cause the thoughts which correspond to them. The correspondence relation holding between thoughts and facts will be extensively discussed later in section 4.4.1.

Since thoughts are objects of acquaintance, and having isolated ‘thought’ as the closest identifier of modal objects, it follows that we can have acquaintance with modal thoughts. More clearly, when we are directly aware of any given modal thought, and that modal thought corresponds to a modal fact, let us henceforth say we are *modally acquainted* with the modal fact with which the given modal thought correspond. Thus, on the one hand, there is the Russellian sense, which enforces a stringent notion of acquaintance in sense-data, and on the other hand, there is the contemporary sense which enforces a flexible notion of acquaintance in accommodating more internal entities than sense-data. On the provisions of the contemporary sense, we now have a new kind of acquaintance, namely, *modal acquaintance*. Henceforth, ‘acquaintance’ refers to acquaintance without qualification; ‘causal acquaintance’ to the Russellian sense; and ‘modal acquaintance’ to our acquaintance with modal objects via our thoughts about them. It is important to re-emphasize that acquaintance is primitive, simple and unanalysable, ‘causal acquaintance’ as used here to describe and identify the Russellian sense is not suggestive of a causal nature for the Russellian sense. Rather, it is in a bid to better explain Lewis (in chapter 3), who used causal acquaintance often in his epistemological account for modal realism.

2.4.2 Modal acquaintance

As argued in the preceding section, modal thoughts are not special kinds of thoughts, they are thoughts *simpliciter*, and as such, they can be objects of acquaintance. In addition, we can now say we are modally acquainted with modal facts when we are directly aware of the modal thoughts that correspond to them. Modal acquaintance is therefore the non-causal basic psychological relation we have with modal facts via modal thoughts. Modal acquaintance fulfils the potentials of acquaintance because as we have seen in sections 2.3 and 2.4, acquaintance restricts thought content and thought formation. Despite modal acquaintance, acquaintance remains only a sufficient and not a necessary condition for knowledge and thought formation. This is because modal acquaintance only accounts for modal knowledge and modal knowledge is only one among the kinds of knowledge we have that seems to be acquired without acquaintance. We do not also require acquaintance to have mathematical knowledge and moral knowledge.

²⁵ Fumerton, 1995, p. 73.

If acquaintance is as Bonjour suggests, a built-in feature that is intrinsic to conscious or experiential states, then modal acquaintance is not just an internalist account, but a mentalist account. Generally, internalism is the view that epistemic properties, precisely justification, are *internal* characteristics of the subject and that the subject needs to be aware of these epistemic properties. Mentalism rejects the latter clause by stating that the subject does not need to be aware of epistemic properties. Pollock gives a more systematic definition of mentalism. According to him, a belief's justification is a function of those states of the believer that are accessible to her automatic processors, whether or not those states are epistemically accessible (or potentially epistemically accessible) to the believer.²⁶ Likewise, we are not required or expected to be aware in a higher-order state, of the cognitive mechanism that directs our cognition of modal thoughts. We are not required and not expected to be aware that we are modally acquainted with modal facts before we can have modal knowledge. Whether we are aware of it or not, modal acquaintance keeps on doing its job. This explains why we often take for granted that we might be incapable of having modal knowledge and why everyone effortlessly employs modality in both ordinary and systematic reasoning.

2.5 Conclusion

Lowe has an interesting view, that is relevant here. Lowe's view sets the stage for the *sui generis* classification of modal knowledge. According to him, "all metaphysics is implicitly modal [and] metaphysical modality is grounded in essence".²⁷ For him, "metaphysics is primarily concerned with *a priori* arguments for the possibility of certain ontological categories and hypotheses; and also, on partly empirical grounds, providing arguments for the actuality of some of those possibilities".²⁸ If as Lowe argues "the relevant epistemic process is not based on intuitions or thought experiments, but rather on direct *a priori* access to essentialist facts which ground modal truths",²⁹ then 'essence precedes existence'. Stated differently, the essence of modal objects precedes their existence since the relevant epistemic process is based on *a priori* access to facts about these essences. Thus, modal objects are out there and realism about modality is a defensible project.

This position presupposes that there is modal knowledge and that we are capable of having such knowledge. However, given the important role of Russell's schemata for knowledge classification in knowledge and thought formation, how to classify modal knowledge based on the classification requires attention. Modal knowledge is not knowledge of truth because it is such that no theory of truth available (correspondence, coherence and deflationary) would satisfactorily explain if modal knowledge is erroneous or not. Modal knowledge is also not knowledge of things because it is such that there is no casual acquaintance with modal objects. This means that on the flowchart, which explains the fundamentality of acquaintance to knowledge and thought formation, modal knowledge cannot be subsumed under knowledge of

²⁶ See, Pollock, *Contemporary Theories of Knowledge*, 1986, pp. 133-134.

²⁷ E. J. Lowe, 'The Rationality of Metaphysics', 2011, p. 106.

²⁸ M. Morganti and T. E. Tahko, 'Moderately Naturalistic Metaphysics', 2016, p. 13.

²⁹ *Ibid.*

truth or knowledge of things. It follows that modal knowledge is of a *sui generis* kind, differing from knowledge of truth and knowledge of things.

Given that Russell's schemata for knowledge classification inadvertently makes acquaintance fundamental to knowledge formation, we need to explain how we acquire modal knowledge through acquaintance? With the aid of the contemporary sense of acquaintance, we were able to construct a new notion of acquaintance, as modal acquaintance. Modal acquaintance enabled the explanation of how acquaintance applies to the formation of modal knowledge. Granted that we can now explain how we have modal knowledge through acquaintance, how do we have acquaintance with modal facts, which are isolated in possible worlds? Before providing an answer to that, it is useful to undertake a survey of the accounts of modal epistemology available. This is so because we need to ascertain where and how they failed to provide an account of modal justification before suggesting modal acquaintance as a better alternative.

Chapter 3

The ‘How We Know’ question

3.1 Introduction

Just like mathematical knowledge, we like to think we have modal knowledge (see arguments against modal nihilism and modal scepticism in section 1.2). Also, like mathematical knowledge, modal knowledge eludes all attempts for an adequate epistemology, probably because it does not fit into the theories of knowledge we have (see the argument for its *sui generis* classification in section 2.5). In a recent publication edited by A. Kind and P. Kung, Ichikawa states;

There is a substantial contemporary literature engaging with questions about the epistemology of metaphysical modality ... Modal epistemology concerns our epistemic access to facts about modality. In particular, modal epistemology typically concerns itself with questions about our knowledge (or justified beliefs, etc.) of claims about metaphysical possibility and metaphysical necessity. One obvious question about our epistemic access to facts about metaphysical possibility and necessity is this one:

(How) How do we come to know facts about metaphysical possibility and necessity?

The How question is familiar in the relevant literature, as are various responses to it. According to one familiar response, we come to know propositions to be possible by conceiving of them, or by conceiving of them in a certain privileged sort of way [*e.g. Yablo (1993). Cf. Chalmers (2002)*]. According to another familiar response, we use a faculty of rational intuition to come to know truths of modality [*e.g. Bealer (2002), Sosa (2007, ch 3)*]. A different sort of response rejects the presupposition of the question, suggesting that the apparent ubiquity of knowledge of metaphysical modality is an illusion brought on by hubristic overconfidence [*e.g., in a limited version, van Inwagen (1998). See also the view discussed in O’Leary-Hawthorne (1996, p. 185)*].¹

The directness of Ichikawa already makes clear what this chapter is all about: the explication of modal epistemology, the question of ‘How We Know’ and responses to the question. Many who have read Kripke (1980) claim that the putative knowledge of many metaphysical necessities suddenly became accessible after reading him. For instance, such claims include, “we now know that gold is necessarily the element with the atomic number 79”,

¹ J. J. Ichikawa, ‘Modals and Modal Epistemology’, 2016, pp. 124-125. Italics are footnotes in the original text.

or that “water is necessarily H₂O”. The possibility versions of such claims also abound. They include, “we now know that is possible for the meter stick in Paris to be longer than one meter” or that “Obama could have been the 46th President of the United States of America”. This sort of Kripkean access to philosophical modal knowledge only takes us as far as realizing the force of metaphysical necessities and possibilities; it does not explain how we come to know them. The explanation of how we come to know metaphysical necessities and possibilities is the concern of modal epistemology.² Ichikawa notes many responses to the ‘How We Know’ question. In this chapter, some of the responses he mentions are discussed. Discussing these responses begins from Lewis’ own response in section 3.2.

3.2 Lewis’ response to the ‘How We Know’ question³

Lewis began by drawing a close similarity between mathematical knowledge and modal knowledge. Mathematical knowledge, according to him is the kind of knowledge we have that defies the theories of knowledge at our disposal. In his view, we can adopt this line of reasoning when considering modal knowledge. Thus, for him, our acquiescence when considering the epistemology of mathematics is enough primacy (precedence for Lewis) when considering the epistemology of modal knowledge. Lewis built this primacy of mathematical knowledge for modal knowledge on the dilemma put forward by Benacerraf.

Benacerraf (1973) presents the problem in this way. Firstly, by explaining in a neo-platonistic way that there are abstract, non-mental and non-physical objects such as numbers and sets. Secondly, that any reasonable epistemological theory of knowledge is causal. The conclusions of these two premises yield the famous Benacerraf’s dilemma: what is necessary for mathematical truth makes mathematical knowledge impossible;

For, as I will suggest, accounts of truth that treat mathematical and nonmathematical discourse in relevantly similar ways do so at the cost of leaving it unintelligible how we can have any mathematical knowledge whatsoever; whereas those which attribute to mathematical propositions the kinds of truth conditions we can clearly know to obtain, do so at the expense of failing to connect these conditions with any analysis of the sentences which shows how the assigned conditions are conditions of their truth.⁴

The dilemma can be further explained in this way:

(1) *Accounts of truth that treat mathematical and nonmathematical discourse in relevantly similar ways do so at the cost of leaving it unintelligible how we can have mathematical knowledge.* The only way to give an epistemological account of mathematical knowledge is to

² Bealer presents two more definitions of ‘modal epistemology’. He states; “The term ‘modal epistemology’ may be understood in three ways. First, as the theory of *modal knowledge* – knowledge of what is necessary and possible. Second, as the theory of *possible knowledge* – what sorts of knowledge are *possible*. Third, as the intersection of the first two: the theory of *possible modal knowledge* – that is, of what modal knowledge is possible”. The classification of modal epistemology above corresponds to Bealer’s first way. See, ‘Modal Epistemology and the Rationalist Renaissance’, 2002, p. 71.

³ This section explains section 2.4: ‘How Can We Know?’ of Lewis’ *On the Plurality of Worlds*, pp. 108-115.

⁴ P. Benacerraf, ‘Mathematical Truth’, 1973, p. 662.

attempt to produce a semantics which would explain mathematics in the same manner as it explains other aspects of our language. However, if we do this, we lose our hold on mathematical knowledge.

(2) *Accounts of truth which attribute to mathematical propositions the kinds of truth conditions we can clearly know to obtain, do so at the expense of failing to connect these conditions with any analysis of the sentences which shows how the assigned conditions are conditions of their truth.* The best account of knowledge (and truth) available requires truth to refer to objects, and since mathematical objects are abstract entities, we cannot make reference to any mathematical object. Thus, we cannot ascribe truth-condition and truth-value to mathematical statements. However, if mathematical statement cannot be assigned truth-values, then there can be no mathematical knowledge.

Lewis continues from here. For him, despite the dilemma, it would be too radical a change if we decide to serve epistemology by giving mathematics some devious semantics. In his view, any such attempt is hubristic and ridiculous especially when “our knowledge of mathematics is ever so much more secure than our knowledge of the epistemology that seeks to cast doubt on mathematics”.⁵ Consequently, Lewis opines that even though we do not have a sufficient epistemic account of mathematics, there is no uncertainty about mathematical knowledge. Lewis believes that the epistemology of mathematics leads the way in any attempt to answer the ‘How We Know’ question of modal knowledge. The epistemology of mathematics leads the way for the epistemology of modality because just as in Benacerraf’s dilemma, what seems necessary for modal truth seems to make modal knowledge impossible.

However, using the epistemology of mathematics in this way involves some risks. (1) Future philosophy of mathematics might turn out to be able to interpret mathematics in an ontologically innocent way without commitment to any unobservable mathematical objects. (2) Future philosophy of mathematics might be accompanied by a future epistemology of mathematics, which would guarantee this interpretation without any devious semantics. (3) The similarity between mathematical knowledge and modal knowledge is a contingent similarity.⁶

Lewis maintains that the first and the second risks are defeasible and as such are dismissible in the same manner and frequency with which they are objections to his primacy thesis. Even if the realization of both the first and the second risks, which in his view is dubitable, is granted, such realization does not altogether wreck the primacy thesis. This is plausible because we would still have been able to understand mathematics in the manner that we do; the realization of this innocent way of interpreting mathematics does nothing to what and how we conceive mathematics.

Lewis provides two responses to the third risk. The first response is that we have abundant modal knowledge of the existence of concrete actual individuals not causally related to us in any way.⁷ If this is correct and we have this abundant modal knowledge perhaps via *a priori* means, divorcing modality from mathematics seems unprincipled. This is how. Mathematical objects are abstract while modal objects are concrete. We may say we cannot have causal acquaintance with mathematical objects because of their abstract nature, but Lewis argues

⁵ Lewis, *On the Plurality of Worlds*, p. 109.

⁶ *Ibid*, pp. 109-110.

⁷ *Ibid*, p. 110.

that this is ludicrous. He thinks it is laughable to say we know only abstract entities without causal acquaintance because they are simply abstract. If we know abstract entities without causal acquaintance, then our access to them must not be because of their non-concrete nature. He explains his reasons in the second response. Lewis continues that knowledge is demarcated by contingency and not by concreteness. That is, what we know are the contingent data we get through our senses, and not what are concrete. These contingent data set up patterns of counterfactual dependence such that had the data been different, what we know would also be different. However, numbers are not contingent; therefore, nothing can depend counterfactually on what mathematical objects there are. Thus, mathematical knowledge differs from other kinds of knowledge we have because it is a non-contingent kind of knowledge.

Lewis ties the primacy thesis to the non-contingency of mathematics which modality has in common with mathematics. According to him, modal knowledge is like mathematical knowledge because both are non-contingent. Just as nothing could counterfactually depend on non-contingents such as numbers, so also nothing could counterfactually depend on a metaphysical possibility. Nothing serious can be said about how our opinions would be different if there were no possibility for dragons and Pegasus to co-exist in a single world or if there were no counterpart-longifolia in any possible world. Thus, in his view, there is a close similarity between modality and mathematics such that whatever we do or say when we consider the epistemology of the latter is what we should do or say when we consider the epistemology of the former. With his primacy thesis secured, Lewis divides the knowledge we can have into two; (1) knowledge of modal objects and mathematical objects, which we do not obtain through observation, and (2) knowledge of actual objects, which we obtain through observation. Nevertheless, this knowledge-division has not provided an answer to the ‘How We Know’ question. Lewis gives three ways to understand the ‘How We Know’ question.

Firstly, we take the question as a request for a fully general analysis of knowledge. Such analysis would apply to all our knowledge claims, modal and mathematical knowledge included. In Lewis’ view, this is not particularly his problem because it is a problem for everyone. More so, the modal realist’s construal of modal knowledge does not worsen the status of our theories of knowledge.⁸ Secondly, the question of ‘How We Know’ can be a request for a ‘naturalistic epistemology’. According to him, the principle of recombination accounts for a naturalistic epistemology of how we come to have modal knowledge. “We try to think how duplicates of things already accepted as possible – for instance because they are actual – might be arranged to fit the description of an alleged possibility. Having imagined various arrangements -not in complete detail, of course - we consider how they might aptly be described”.⁹ However, the principle of recombination breaks down when we consider more far-fetched possibilities because such possibilities may be too complex to be imagined. Thirdly, we take the ‘How We Know’ question as a sceptical challenge. By sceptical challenge, Lewis means a request to put our alleged modal knowledge on a firm foundation or a request to show that we derive our modal knowledge by an infallible method. In his view, this request for a regress argument of

⁸ *Ibid*, p. 113.

⁹ *Ibid*, p. 114.

justification for our modal knowledge, and for an infallible method is simply a hopeless venture.¹⁰

Conclusively, in the view of Lewis, (i) we have modal knowledge and modal realism is the correct account of what we know about metaphysical possibilities, (ii) modal knowledge, like mathematical knowledge, seems not to fit into the theories of truth and knowledge we have. (iii) Any attempt to fit modal knowledge into the available theories of truth and knowledge seems to renders modal knowledge impossible, (iv) any epistemology of modal knowledge to be proffered must explain our access to modal facts in clear language. (v) That (iv) seems largely unrealistic does not mean we eschew modality and modal knowledge. Thus, whether or not we can ascertain the truth of LMR, modality remains respectable because we are far more confident of what we know about metaphysical possibilities than how we know. After all, no one jettisons mathematics even though we do not have an epistemology for mathematical truths.

3.3 Recent responses to the ‘How We Know’ question

Attempts to answer the ‘How We Know’ question surfaced in the literature of modal metaphysics and modal epistemology. As seen in section 3.1, Ichikawa points us in the right direction. He mentioned Yablo (1993), Bealer (2002), Chalmers (2002), and others. The likes of Hill (2006), and Williamson (2007) are added to the list.

3.3.1 The conceivability theorists

These are philosophers who think that we have epistemic access to modal facts through our imagination or put strictly, through our capacity to conceive. A common theme of these philosophers is that “if it is conceivable that p then it is possible that p ”. Hard-core conceivabilists include Kripke (1980), Nagel (1974), White (1986), Robinson (1993), Jackson (1982, 1993, and 1998), Chalmers (1996, 1999 and 2002), Levine (1998), and Yablo (1993). For our purpose, which is to understand how conceivability allows us access to modal knowledge, only Yablo and Chalmers are discussed. This is because they did not only employ the conceivability thesis in their theories, they set out to explain why and how conceivability is a guide to possibility.

3.3.1.1 Yablo’s ‘conceivability via imaginability’

Since Descartes’ controversial transition from his ability to conceive himself as a disembodied entity to the conclusion that he is not identical with his body via the possibility of his disembodied existence, considerable efforts have been devoted to illustrate why conceivability is not a guide to possibility. Yablo (1993) maintains that if the problem with conceivability methods was only that we could not explain their reliability, then, maybe we could live with that. The problem is supposed to be that they are demonstrably unreliable, and this he finds unphilosophical, especially when conceivability methods hold much degree of persuasion and verisimilitude. Thus, he avers, philosophers who are willing to be persuaded of p ’s possibility by their ability to conceive p (and that is most of us, most of the time, according to him) should face the issue squarely. Hence, he sets out to defend the position that conceivability is a guide to possibility.

¹⁰ *Ibid*, pp. 114-115.

According to Yablo, conceivability is closely aligned with imagination. According to him, imagination can either be propositional; when we imagine that there is a tiger behind the curtain, or objectual; when we imagine the tiger itself. Yablo argues that it is propositional imagining as accompanied by objectual imagining that is of interest. That is, to imagine ‘that there is a tiger behind the curtain’ which is propositional, entails imagining ‘a tiger’, and imagining ‘it as behind the curtain’ which is objectual. Since our imagination is incomplete, and possible worlds are maximally complete in every respect, not every instance of our imagination yields a possible world. Rather, the instances of our imagination are situations, which are parts of possible worlds, and they are verifiable by the possible world, which they are part of. Thus, we can say “conceiving that p is a way of imagining that p ; it is imagining that p by imagining a world in which p is held to be a true description. Thus, p is conceivable for me if I can imagine a world that I take to verify p ”.¹¹

Yablo continues that this kind of analysis could lead into two directions. (1) imagining a *res* in this way is impossible unless it already appears that the *res* could exist, and (2) to imagine a *res* is thereby to enjoy the appearance that the *res* could exist. In his analysis, (1) is not correct because there are counterexamples to it. We were able to admit the possibility of such things as justified true beliefs that are not knowledge (of Gettier (1963)) and zombie individuals (of Chalmers (2002)) after we learnt to imagine them. (1) is therefore not the correct way in which imagination works. Yablo thinks (2) must be correct since (1) is wrong. In addition, the reason why (1) is incorrect shows that it is in fact, in the act of imagining the zombie individuals and the Gettier counterexample to knowledge as justified true beliefs, that it is conceivable that such zombie individuals and justified true beliefs which are not knowledge, are indeed possible. Therefore, conceivability as a guide to possibility divides into two sub-tasks: (1) imagining a possible world and (2) satisfying ourselves that p is true in the imagined world.

For Yablo, we should interpret the conceivability thesis as a fallible evidence for possibility. Ignorance of the impossibility of p may lead me into imagining and thus conceiving p . Suppose that there is a q such that if q is true, p is impossible, but I was not aware that q is true, I could go ahead and conceive p and from conceiving that p , conclude that p is possible. For instance, the ancients conceived it as possible for Hesperus to outlast Phosphorus because they were ignorant of the truth that Hesperus is identical with Phosphorus. According to Yablo, this sort of ignorance is not tantamount to the impossibility of p . He therefore concludes that *whatever* a subject s finds conceivable, s is *prima facie* entitled to regard as metaphysically possible, because ignorance of the fact that the *whatever* s conceived is impossible does not itself do much to explain why s could conceive it as possible in the first place.¹²

3.3.1.2 Chalmers’ Zombie-conceivability

Chalmers’ (1996, 1999 and 2002) position on the ‘How We Know’ question is set in a broader context of demonstrating the incompleteness of physicalism. If physicalism is true, then no possible world w can be identical to our world with respect to physical facts without being identical in mental facts. However, if there are zombie worlds, then physicalism is false. Take a zombie world as an exact physical duplicate of our world, where there are no conscious

¹¹ S. Yablo, ‘Is Conceivability a Guide to Possibility?’, 1993, pp. 28-29.

¹² See, *Ibid*, p. 34 & 36.

experiences, and a zombie as a molecule-for-molecule duplicate of a conscious person, which lacks conscious experiences. Chalmers argues that there are zombie worlds because a zombie world is conceivable by means of ideal rational reflection on the concepts employed in the description of a zombie world. By ideal rational reflection, Chalmers means that the description of a zombie world does not involve any contradiction.¹³ In the structure of the argument, the weakest link is the movement from conceivability to possibility, and many criticisms of the argument against the completeness of physicalism from zombies-conceivability have come from that angle.¹⁴ Thus, Chalmers (2002) set out to make this link strong by defending the position that conceivability is indeed a guide to possibility.

According to Chalmers (2002), we need to deconstruct conceivability before we attempt to demonstrate how conceivability is a guide to possibility. For him, conceivability is a property of a proposition, and the conceivability of a statement is in many cases, relative to a thinker, so that when we say *S is conceivable* what we mean is really that *S is conceivable to a subject s*. Conceivability may be understood in different ways. Chalmers explains three dimensions of difference between the notions of conceivability: *prima facie* vs. ideal conceivability, positive vs. negative conceivability, and primary vs. secondary conceivability.¹⁵

If *S* is *prima facie* conceivable, then *S* is conceivable on first appearance, that is, *S* passes the tests that are criteria for conceivability. The criteria to be passed depend on other substantive notions of conceivability, which are yet to be explained. Anticipating one of these notions, say, primary conceivability to illustrate this, *S* is primary conceivable if *S* is actually the case. Under this notion, *S* is *prima facie* conceivable if, on first appearance, *S* is actually the case. Ideal conceivability complements or grounds *prima facie* conceivability in a sense. *S* is ideally conceivable if *S* is conceivable on ideal rational reflection. Using the notion of primary conceivability highlighted above, *S* is ideally conceivable if, after ideal rational reflection on *S*, we discover that *S* is always actually the case. Thus, when *S* fails the criterion for conceivability, even though *S* is *prima facie* conceivable, *S* will not be ideally conceivable. When the criteria are passed, *S* is both *prima facie* and ideally conceivable.

S is positively conceivable when positive conception of a situation in which *S* is the case is conceivable. This is very similar to Yablo's notion of conceivability discussed above so that we bring in imagination to explain how this verifying-situation is positively conceived. *S* is negatively conceivable when *S* is not ruled out (either *a priori* or via contradiction), that is, no situation can be conceived that rules out *S*.¹⁶ Chalmers' explanation of these notions of

¹³ See, A. Berglund, 'From Conceivability to Possibility: An Essay in Modal Epistemology', 2005, p. 43.

¹⁴ A simplified version of the argument is presented by Aranyosi;

1. If zombies are logically possible, then zombies are metaphysically possible.
2. If zombies are metaphysically possible, then physicalism is false.
3. Zombies are conceivable.
4. If zombies are conceivable, then zombies are logically possible.
5. Zombies are logically possible. (from 3 and 4)
6. Zombies are metaphysically possible. (from 1 and 5)
7. Physicalism is false. (from 2 and 6)

In Aranyosi's simplified version, 4 refers to the weakest link. See, I. Aranyosi, *Physicalism and Consciousness. A defence of commonsense functionalism*, Ph.D. thesis, 2004.

¹⁵ D. Chalmers, 'Does Conceivability Entail Possibility', 2002, p. 2.

¹⁶ Chalmers likened the relation between positive and negative conceivability to van Cleve's (1983) weak and strong notions of conceivability. According to van Cleve, *S* is strongly conceivable when *S* is possible; and *S* is weakly

conceivability builds on one another so that *S* is *prima facie* positively conceivable or *prima facie* negatively conceivable or ideally positively conceivable or ideally negatively conceivable. If *S* is *prima facie* positively conceivable, then it appears on first appearance that an imaginable situation verifies *S*. If *S* is *prima facie* negatively conceivable, then it appears on first appearance that *S* is not totally ruled out *a priori* and/or is not ruled out by contradiction by any imaginable situation. *S* is ideally positively conceivable if after ideal rational reflection we detect that that an imaginable situation verifies *S*. *S* is ideally negatively conceivable when ideal rational reflection on *S* grounds that it is not *a priori* that $\neg S$ or it is not contradictory that *S*. Chalmers argues that if *S* is positively conceivable, *S* is negatively conceivable (in both the *prima facie* and ideal cases).

S is primarily (or empirically) conceivable when *S* is actually the case. *S* is secondarily (or subjunctively) conceivable when *S* might have been the case. Consider a Kripkean example for illustration. According to Kripke, Hesperus is Phosphorus is a true sentence. If it is true it is necessarily true. Thus, it is actually the case that Hesperus is Phosphorus and this is a case of primary conceivability. However, 'Hesperus is Phosphorus' is a necessary *a posteriori* truth, thus, there was a time when it was thought that Hesperus is not Phosphorus. That is, it might have been the case that Hesperus is not Phosphorus and this is a case of secondary conceivability. Similar to the case of positive and negative conceivability, the versions of *prima facie*, ideal, positive and negative primary or secondary conceivability are also constructible.

With these distinctive notions of conceivability explained, Chalmers moves on to identify the specific notion of conceivability that is the best guide to possibility. According to him, *prima facie* conceivability, is not a good guide to possibility. As pointed out above, this is because (1) *prima facie* conceivability can easily be undermined by ideal conceivability and (2) when *prima facie* positive conceivability does not back *prima facie* negative possibility (but, they should always back each other up), the possibility that is evoked is a weak one. He also contends that ideal conceivability fares better than *prima facie* conceivability since both ideal positive and ideal negative conceivability are more tenable than *prima facie* positive and *prima facie* negative conceivability, and they back each other up. These leave him with primary and secondary conceivability. He concludes that primary conceivability (in all its varieties except *prima facie*) is a much better guide to possibility because it explains via intensions what obtains in our world and what does not. To understand how primary conceivability performs this task, let us review how Chalmers uses intensions.

Intensions are the distinctive ways Chalmers uses statements relative to worlds. If the world is a centred world (marked with a specified individual and time), then the world is actual, but if it is not centred, then it is a counterfactual. If *S* is to be evaluated in the actual world, then the intension is primary, but if *S* is to be evaluated in some possible world, then the intension is secondary. In primary conceivability, what we do is we make the hypothetical situation the actual world, and we make the hypothetical situation a counterfactual in secondary conceivability. For instance, when we primarily conceived Hesperus as Phosphorus, what we did was to conceive a situation in which Hesperus is Phosphorus and make that situation actual.

conceivable when *S* is not seen as impossible. In this way, van Cleve's weak conceivability and Chalmers' negative conceivability are similar, and van Cleve's strong conceivability and Chalmers' positive conceivability are similar. See, *ibid*, p. 9.

Likewise, when we secondarily conceive Hesperus as not Phosphorus what we did was to conceive a situation in which Hesperus is not Phosphorus and make that situation a counterfactual, hence, the empirical and the subjunctive natures of primary and secondary conceivability respectively.¹⁷ However, secondary conceivability (in all its varieties) never yields access to modality because it depends on *a posteriori* evaluation (of Hesperus and Phosphorus), and modality is essentially *a priori*.¹⁸ The primary intension of ‘Hesperus is Phosphorus’ makes it that whenever Hesperus is Phosphorus in any world, ‘Hesperus is Phosphorus’ is primarily possible or 1-possible. The secondary intension of S on the other hand makes it that whenever S is true in any world; S is secondarily possible or 2-possible. Primary and secondary necessities can likewise be analogously defined.

For Chalmers, secondary possibility and secondary necessity make for how something can be metaphysically possible or necessary. The standard account states something is metaphysically necessary if it is true in all possible worlds. Therefore, if Hesperus is Phosphorus is true in all possible worlds, then ‘Hesperus is Phosphorus’ is a metaphysical necessity. If the secondary intension of ‘Hesperus is Phosphorus’ is true, that is, if the world in which we evaluate ‘Hesperus is Phosphorus’ is a counterfactual world, and Hesperus is still Phosphorus in that world, then it is a metaphysical necessity that ‘Hesperus is Phosphorus’, since, in our world, we already know that Hesperus is Phosphorus. Likewise, ‘Water is XYZ’ is metaphysically possible (not necessary) because even if ‘Water is XYZ’ is 2-possible it is not 2-necessary, given that Water is not XYZ in our world. Thus, unless we are interested specifically in metaphysical necessities (which very often we are not due to its edgy nature), Chalmers summarizes that; “if any variety of *a priori* conceivability entails possibility, it must be a variety of ideal primary conceivability, and the variety of possibility that is entailed must be primary possibility”.¹⁹

3.3.2 The counterfactual theorists

According to this group of philosophers, our epistemic access to modal facts is from our natural capacity to reason counterfactually and subjunctively. Understanding how the logic of counterfactuals and subjunctives works provides access to a sufficient modal epistemology.

3.3.2.1 Williamson’s ‘from counterfactual knowledge to modal knowledge’

Williamson’s (2007) built his position on these three theses. (1) The difference in the subject matter and methodology of philosophy and other discipline is not very deep. (2) The distinctive subject matter of philosophy is metaphysical modalities and knowledge about metaphysical modality. (3) There is no special cognitive capacity distinctive of philosophical thought. Based

¹⁷ This part of the argument is known as Two-Dimensionalism. Jackson (1998) also offers a similar version in his objection to physicalism. Two-Dimensionalism gives a novel approach to how we understand language. According to two-dimensionalists, all we need to understand a sentence or a word, is just the primary intension of the word or sentence, because, expressed sentences depend on the context of utterance, that is, the world in which it is uttered.

¹⁸ This presupposes that primary conceivability is always a matter of apriority. Chalmers presents the following argument: “Primary conceivability is always an *a priori* matter. We consider specific ways the world might be, in such a way that the true character of the actual world is irrelevant. In doing so, empirical knowledge can be suspended, and only *a priori* reasoning is required ... Secondary conceivability works quite differently. It is grounded in the idea that we can conceive of many counterfactual ways that the world might have been but is not ... we acknowledge that the character of the actual world is fixed, and say to ourselves: if the situation *had* obtained, what *would have been* the case?”, *ibid*, p. 11.

¹⁹ *Ibid*, p. 22.

on these three theses, Williamson posits that there must be a plausible way to subsume our capacity to discriminate metaphysical modalities under more general cognitive capacities used in ordinary life.²⁰ There must be a way that shows how philosophers go about their business of analysing metaphysical modality (thesis 2) in a way that is comprehensible to everyone (thesis 3) because philosophy and other disciplines are not too different as many would think (thesis 1). For Williamson, this plausible way is in our counterfactual reasoning: “metaphysical modalities are definable from counterfactual conditionals, and the epistemology of the former is a special case of the epistemology of the latter”.²¹

Avoiding the complications, which ensue in using the possible-worlds semantics to analyse counterfactuals, Williamson eschews the possible-worlds semantics and focuses on how *actually* we have counterfactual knowledge. In his view, we have counterfactual knowledge through imagination. If I see that the bush before the river stopped a rock sliding down a mountainside of rolling into the river, I will conclude, “Had the bush been absent, the rock would have ended up in the river”. Williamson argues that I could as well imagine the rock to be levitating instead of rolling down, but I did not because my perception of the rock and the slope and my understanding of how nature works has radically informed and disciplined my imagination.²² Thus, despite the influence of physics and the laws of nature, imagination alone is not sufficient in explaining how we have counterfactual knowledge.

What we need, according to Williamson, is a kind of ‘simulation’, where simulation involves the offline application of our cognitive process. To understand this, consider two distinct sentences A and B. We access and analyse these sentences as freestanding through our cognitive faculties. However, in the evaluation of the counterfactual conditional $A \square \rightarrow B$ (if A had held, then B would also have held), cognitive faculties are run offline, where ‘offline’ simply translates as ‘the most direct links with perception have been cut’. Williamson states, “We can schematize the process of evaluating a counterfactual conditional thus: the thinker imaginatively supposes the antecedent and counterfactually develops the supposition, adding further judgments within the supposition by reasoning, off-line predictive mechanisms, and other off-line judgments”.²³ With simulation, Williamson connects imagination to counterfactual knowledge.

Even though simulation helps in the formation of counterfactual knowledge, we still need to demonstrate how counterfactual reasoning generates an epistemology of metaphysical modality. According to Williamson, “metaphysically modal thinking is logically equivalent to a special case of counterfactual thinking”.²⁴ He achieved this by formulating a formal system, which generates the logic of modal operators from the logic of counterfactual conditionals. For him, anyone who has the capacity to understand how the logic of counterfactual conditionals works also has the capacity to understand the possibility and necessity operators. A good starting place, he argues, is the formulation of two constraints on the relation between counterfactual conditionals and metaphysical modalities. The first constraint is NECESSITY and it states that the strict conditional implies the counterfactual conditional. The second is POSSIBILITY, which

²⁰ A. Casullo, ‘Counterfactuals and Modal Knowledge’, 2012, pp. 251-254.

²¹ T. Williamson, ‘Philosophical Knowledge and Knowledge of Counterfactuals’, 2007, p. 89.

²² *Ibid*, p. 99.

²³ *Ibid*, p. 108.

²⁴ *Ibid*, p. 113.

states that the counterfactual conditional transmits possibility. For the sake of easy comprehension, Williamson's system is deformalized below.²⁵

NECESSITY (N) $\Box(A \supset B) \supset (A \Box \rightarrow B)$		POSSIBILITY (P) $(A \Box \rightarrow B) \supset (\Diamond A \supset \Diamond B)$	
	Suppose that A could not have held without B holding too; then if A had held, B would also have held.		Suppose that if A had held B would also have held; then if A may have held, B may also have held.
(11) $\Box(\neg A \supset \perp) \supset (\neg A \Box \rightarrow \perp)$	Given (N), since A must hold or else there is a contradiction; then if A had not held, there would also have been a contradiction.	(14) $(\neg A \Box \rightarrow \perp) \supset (\Diamond \neg A \supset \Diamond \perp)$	Given (P), since if A had not held, there would have been a contradiction; then, if A may not hold, there may also be a contradiction.
(12) $\Box A \supset \Box(\neg A \supset \perp)$	Given (11), A always holds, if A must hold or else there is a contradiction.	(15) $(\Diamond \neg A \supset \Diamond \perp) \supset \Box A$	Given (14), since if A may not hold, there may be a contradiction; then A always holds.
(13) $\Box A \supset (\neg A \Box \rightarrow \perp)$	Likewise, given (11), A always holds, if had A not held, there would have been a contradiction.	(16) $(\neg A \Box \rightarrow \perp) \supset \Box A$	Likewise, given (14), since if A had not held, there would have been a contradiction; then A always holds.
(17) $\Box A \equiv (\neg A \Box \rightarrow \perp)$	Given (13) and (16), A always holds if and only if, had A not held, there would always have been a contradiction.		
(18) $\Diamond A \equiv \neg(A \Box \rightarrow \perp)$	Given (17), it could be A if and only if, it is not the case that, if A had held, there would always have been a contradiction.		
(19) $\Box A \equiv (\neg A \Box \rightarrow A)$	Given (17), it is always A if and only if, had A not held, A would have held.		
(20) $\Diamond A \equiv \neg(A \Box \rightarrow \neg A)$	Given (18), it could be A if and only if, it is not the case that, if A had held, A would not have held.		
(21) $\Box A \equiv \forall p (p \Box \rightarrow A)$	Given (19), it is always A if and only if, for any whatever, if the whatever had held, A would have held.		
(22) $\Diamond A \equiv \exists p \neg (p \Box \rightarrow \neg A)$	Given (20), it could be A if and only if, for some whatever, it is not the case that, if the whatever had held, A would not have held.		

The strength of Williamson's system lies in the truth of (17) and (18). (17) and (18) are definitions of necessity and possibility in terms of counterfactual conditionals, and the transition from (17) and (18) to (19) and (20) respectively solidifies the strength provided by the former. (19) and (20) claim that the 'necessary' is that which counterfactually implies its own negation, and the 'possible' is that which does not counterfactually imply its own negation. Likewise, (21) and (22) further solidify this strength. With these three definitions of necessity and possibility provided respectively by (17), (19), (21) on the one hand and (18), (20), (22) on the other, Williamson argues that the logic of counterfactual conditionals smoothly generates the logic of modal operators. In his view, this provides a grasp on how modal operators operate. Thus, when

²⁵ The numbers from (11) to (22) correspond to the numbers of the formal statements being deformalized; although, the deformalized statements of (N) and (P) are Williamson's not mine. See, *ibid*, p. 109-115. I refrained from using 'necessarily' and 'possibly' in the explanation because 'necessarily' and 'possibly' are precisely what we are working towards. That is, the goal is how the logic of counterfactual conditionals yields an epistemology of necessity and possibility.

we run our cognitive faculties offline during simulation of possibilities, we do this on the foreknowledge that through counterfactual conditionals we can generate valid and true cases of metaphysical modalities.

3.3.2.2 Hill's 'reductive subjunctive conditionals'

Hill's (2006) position on the 'How We Know' question is set in a broader context of demonstrating that the modal arguments for property dualism are seriously and irremediably flawed. He develops his position as a direct response to the claim that conceivability provides epistemic access to metaphysical possibilities. In his view, the conceivability accounts may have provided an analysis of the epistemology of metaphysical possibilities when they claim "a proposition counts as metaphysically possible if it is compatible with the propositions that are metaphysically necessary".²⁶ Hill argues that they leave unexplained our epistemic access to metaphysical necessity, particularly because they take as trivial that we have some sorts of independent access to metaphysical necessity. Thus, he concludes that conceivability does not provide us with satisfactory access to metaphysical modalities. Consequently, he proposes a tentative answer to the 'How We Know' question by contending that metaphysical modalities be reductively explained in terms of subjunctive conditionals.

Subjunctive conditionals are of the form *If it were the case that P then it would be the case that Q*. In Hill's view, since subjunctive conditionals play a definitive role in everyday reasoning, a correct account of our epistemic access to metaphysical modalities via subjunctive conditionals will be a stable and robust account.²⁷ He suggests that the link between subjunctive conditionals and the epistemology of metaphysical modalities lies in Lewis' possible-worlds analysis of subjunctive conditionals. Hill's system is also deformatalized to aid easy reading and comprehension.²⁸

(16) $\Box A =_{df} \sim A > A$.	According to Lewis, 'A is necessary' is interdefinable with 'if it were not the case that A, then it would have been the case that A'.
(17) $\Box A$ is true at a possible world W just in case A is true at every possible world that is accessible from W .	According to Lewis, the truth-conditions of a proposition containing the necessity operator is analysed according to the possible worlds that are accessible from the world in which the proposition is true.
(18) All possible worlds are included in the possible worlds that are accessible from W (that is, in the possible worlds that are relevant to the semantic evaluation of subjunctive conditionals with respect to W).	Lewis makes the jump to (18) because of the standard picture of metaphysical necessity. According to this picture, if a proposition is metaphysically necessary, then it holds in all possible worlds, and not just in a restricted subset of the set of possible worlds.

²⁶ C. Hill, 'Modality, Modal Epistemology, and the Metaphysics of Consciousness', 2006, p. 217.

²⁷ *Ibid*, p. 219.

²⁸ The numbers (16) to (19) correspond to Hill's numbering of the axioms he employs in his paper. However, H1 to H3 are my representation of Hill's axioms that were not numbered in the paper.

<p>H1 Suppose that there is some respect R of comparison of worlds, and some degree D of similarity between worlds with respect to R, such that worlds must be similar to W in respect R to degree D in order to count as accessible from W (where W is any given world).²⁹</p>	<p>Hill explained why (18) is true with H1. In his view, R and D cannot be arbitrary. There must be some features of our practice of evaluating subjunctive conditionals that establish R and D. If this is true, our capacity to specify R and D must in the first place be able to provide the means to formulate a proposition that holds only in the worlds that lie outside the sphere of similarity that is determined by R and D. With this proposition, a meaningful conditional can be formulated and those worlds that lie outside the sphere of similarity are by that fact, accessible from the given worlds. Thus, all worlds; both those within the sphere of similarity and those outside are accessible from the sphere of accessibility of any given world.</p>
<p>(19) $\Box A$ is true at W just in case A is true at all possible worlds.</p>	<p>If all the worlds accessible from W are all possible worlds, given H1, then (17) becomes (19).</p>
<p>H2 $\Box A =_{df} (\Pi Q) (Q > A)$.³⁰</p>	<p>Given (19), Hill advanced that for any whatever; if it were the case that the whatever holds, then it would still have been the case that A. This definition is interdefinable with ‘it is necessary that A’.</p>
<p>H3 $\Diamond A =_{df} \sim \Box \sim A$.</p>	<p>Given (16), ‘it is possible that A’ is interdefinable with ‘it is not necessary that it is not A’. According to Hill, just as Lewis’ necessity operator expresses genuine metaphysical necessity, so this possibility operator expresses genuine metaphysical possibility.</p>

Above is Hill’s first argument that metaphysical necessity and metaphysical possibility can be reductively explained in terms of subjunctive conditionals. The second builds on the first in a sense and is somehow more complex than the first, and for these reasons, the second is not discussed here. With the validity of H2 secured, Hill moved to the conclusion that the Lewisian

²⁹ H1 is not exactly framed in this way. Hill’s starting place was with the actual world; thus W according to him, is to be taken as the actual world even though he later expanded it to show that the result would still be the same had W been taken as any possible world. I have chosen to write H1 in this way and not in Hill’s style because I do not want to multiply the Hs. I would have needed to add an H2 to demonstrate how Hill showed that any possible world yields the same result as the actual world. See, *ibid*, pp. 221-222.

³⁰ According to Hill, the quantifier ΠQ , is the universal substitutional quantifier which captures the idea that A would be the case no matter what else was the case. “A proposition of the form $(\Pi Q) (. . . Q . . .)$ is true just in case every proposition that results from substituting a proposition for the variable Q in the matrix $(. . . Q . . .)$ is true”. *Ibid*, p. 223.

subjunctive necessity is identical with genuine metaphysical necessity. Since the main reason he proposes his theory was to devise how we have access to metaphysical necessity, he need not bother with metaphysical possibility; all he needs is to generate a definition of the possibility operator from the necessity operator, and H3 achieved that. A closer analysis of H2 and H3 makes clear that the truth they express is a logical truth. They both respectively define the necessity and possibility operators using subjunctive conditionals. Thus, Hill concludes that anyone who understands subjunctive conditionals understands how the necessity and possibility operators function.

3.3.3 The understanding theorists

According to the understanding theorists, epistemic access to modal facts is available through our understanding of the concepts employed in modal contexts. Only Bealer (2002) is discussed under this category.³¹

3.3.3.1 Bealer's determinate understanding

The traditional account of necessity until Kripke (1980) draws a synonymy between necessity and apriority when it states that “*p* is necessary if and only if we know *a priori* that *p*”. Despite Kripke's correction that the equivalence (...if and only if...) of this traditional account fails in both directions, Bealer (1996 and 1999) thinks that the traditional equivalence still holds for some kinds of propositions. He calls such propositions the ‘semantically stable propositions’. According to him, proposition *p* is semantically stable if and only if, necessarily, if *p* plays some cognitive role in the mental life of a community *c*, then it is necessary that for any other community *c** in qualitatively the same epistemic situation as *c*, no proposition can play that role other than *p* itself.³² Arguably, virtually all central propositions of the traditional *a priori* disciplines – logic, mathematics and philosophy – are semantically stable, given Bealer's definition of semantic-stability above. However, semantic-stability thus defined makes clear that the cognitive role played by the central propositions of the traditional *a priori* disciplines is necessary. Thus, a new problem arises in how to ascertain the veracity of the traditional disciplines' central propositions since they tend to tell us what is necessarily the case. Responding to this new problem, Bealer (2002) defends an account of modal epistemology, which builds on our ability to understand.

According to Bealer (2002), the appropriate route to modal epistemology is through the proper understanding of our concepts. There are two senses in which we can ‘understand’ concepts. The first sense is a weak nominal sense whereby “a subject possesses a given concept at least nominally iff the subject has natural propositional attitudes toward propositions that have that concept as a constituent content”.³³ The second is a robust sense, which involves understanding the concept in a determinate or indeterminate manner. A subject determinately understands a concept “if and only if (i) the subject at least nominally possesses the concept and (ii) the subject does not do this with misunderstanding or incomplete understanding or merely by

³¹ Peacocke (1997) also talks about understanding as a guide to modal epistemology but he is not discussed here. This is because, he defends a form of constraint modalism which quantifiers over ersatz worlds.

³² G. Bealer, ‘Modal Epistemology and the Rationalist Renaissance’, 2002, p. 72.

³³ Bealer, *ibid*, p. 103.

virtue of satisfying our attribution practices or many other such manners”.³⁴ A subject indeterminately understands a concept if he does not determinately understand it. It is this second sense that Bealer thinks captures the appropriate notion of understanding, which generates access to metaphysical modality.

Bealer provides an example to explain the notion of determinate understanding. If a woman introduces a concept *multigon* through her journal, and she determinately understands this concept to mean any closed, straight-sided plane figure, or any closed, straight-sided plane figure with five or more sides. If she has never applied her multigon to our triangle or rectangle, Bealer proposes that when eventually she does, she would be able to intuit that it is possible for our triangle and rectangle to be a multigon if and only if being a multigon is having closed, straight sided planes. She would also be able to intuit that it is impossible for our triangle and rectangle to be a multigon if and only if being a multigon is having closed, straight sided planes of five or more sides. In this way, she would have *truth-tracking* intuitions because of her determinate understanding of multigon. Determinate understanding leads to *a priori* stability and thus to metaphysical possibility.

Take the woman to be filling the place of a variable x . Take her conceptual repertory to be c and take the level of her cognitive condition³⁵ to be l . Take multigon to be filling the place of a proposition p . Take the mode of her understanding p which is determinate to be mode m , such that we can say she m -ly understands p . Thus, since x has cognitive condition l and conceptual repertory c , and x m -ly understands p , x can know the truth of p solely on the truth-tracking intuitions generated when she attempts to systematize theoretically whether p is true. In other words, “once x achieves cognitive conditions l and conceptual repertory c , theoretical systematizations of x ’s intuitions always yield the same verdict on p as long as p continues to be understood m -ly throughout”.³⁶ In this way, we can say that x settles with *a priori stability* that p is true. x ’s knowledge that p is true is *a priori* since all x needs to know the truth of p are some cognitive condition of some level l , some conceptual repertory c and m -ly understanding of p ; all of which are essentially *a priori*. x ’s knowledge that p is true is also stable because for any similar l^* and c^* , if x has both l^* and c^* , and x m -ly understands p , the intuitions x elicit in that situation would also affirm the truth of p .

Using this notion of *a priori* stability, Bealer gives a definition of determinate understanding, which shows how metaphysical possibilities are known. According to him, “determinate understanding = the mode m of understanding such that, necessarily, for all x and property-identities p ³⁷ understood m -ly by x , p is true iff it is possible for x to settle with *a priori* stability that p is true”.³⁸ For Bealer, the sufficiency-claim (...iff it is possible for x to settle with *a priori* stability that p is true) is a correctness property of the definition because it tells us about the potential quality of x ’s intuitions. By potential quality, he means, it is metaphysically possible for x to get into a cognitive situation, such that from that point on, the theoretical

³⁴ *Ibid.*

³⁵ Take cognitive conditions to be such things as intelligence, ontogenetic make-up, etc. Take conceptual repertory as the ability to use terms distinctively for designated meanings.

³⁶ Bealer, *ibid.*, p. 104.

³⁷ Take ‘property-identities p ’ to be any similar proposition p^* which expresses the explanatory content of p such that p and p^* are identical with regard to their properties.

³⁸ Bealer, *ibid.*

systematizations of x 's intuitions yield only the truth regarding p , provided that x m -ly understands p all the while. On the other hand, the necessity-claim (...necessarily, for all x and property-identities p understood m -ly by x) is a completeness property of the definition because it tells us about the potential quantity of x 's intuitions. By potential quantity, Bealer means, it is metaphysically possible for x (or any counterpart of x) to have enough intuitions to reach *a priori* stability regarding the question of p 's truth, provided that x m -ly understands p all the while.

3.4 Conclusion

Pressure is on epistemologists to give a reasonable account of modal epistemology, and modal reliabilism increases this pressure. Reliabilism (about knowledge) “has it that knowledge is reliable true belief, that is, true belief which has been acquired in a reliable way”,³⁹ and a process is reliable “just in case it tends to produce beliefs that are true rather than false”.⁴⁰ Under this notion of reliabilism, modal reliabilism becomes the doctrine that an object or concept or principle or theory counts as evidence if and only if there is an appropriate kind of modal tie between what it delivers and the truth.⁴¹ For example, over the course of the past years, many epistemologists⁴² have defended the view that intuition is a tool for metaphysical analyses. If intuition performs this role, then intuition is modally reliable as evidence for the autonomous methodology of metaphysics. This is because there is an appropriate modal tie between what intuition delivers and the truth; at least to the extent to which metaphysics is implicitly modal.⁴³

If modal reliabilism is tenable to the extent described above, then modal reliabilism entails modal rationalism. Chalmers (2010) gives a definition of modal rationalism. According to him, modal rationalism is the doctrine that the *a priori* access to modality creates a constitutive tie between the modal and rational domains.⁴⁴ Building on Chalmers' definition therefore, modality is rational, and if modality is rational then it is epistemically explanatory. Consequently, the difficulty in epistemically explaining modality creates a tension between modal rationalism and modal reliabilism. It is either modality is not rational and so no epistemic explanation is needed, or, it is rational, and if rational, it needs explanation. Since it is standardly taken that modality is rational, then there is pressure on epistemologists to provide an adequate account of modal epistemology.

In order to ease this difficulty and epistemically explain modality, we need to understand (1) what constitutes modality and (2) how we have modal knowledge. Concerning (1), we have LMR. Concerning (2), we are nowhere near a satisfactory account, because our solution for (1) seems to deprive (2) of any reasonable solution. Given LMR, what seems necessary for modal truth seems to make modal knowledge impossible, *à la* Benacerraf's style for mathematical truth. It is little wonder then, that Lewis separated modal knowledge from causal acquaintance.

³⁹ P. Baumann, ‘Reliabilism – Modal, Probabilistic or Contextualist’, 2009, p. 77.

⁴⁰ A. Goldman, ‘What is Justified Belief?’, 1992a, p. 113. He also developed the theory that reliability is a modal notion. See, Goldman (1986, 1988 and 1992b).

⁴¹ Bealer, *ibid*, p. 102.

⁴² See, Bealer (1996 and 1999), Sosa (2005 and 2007), Brown (1991), Chalmers (2014) and Rowbottom (2014).

⁴³ Refer to section 2.5 above for Lowe's argument on the implicit modal nature of metaphysics.

⁴⁴ Chalmers, *The Character of Consciousness*, 2010, pp. 191-192.

Lewis' attempt to separate modal knowledge from acquaintance, does not help us understand how we have modal knowledge. More importantly, his conclusion on modal epistemology that "just like with mathematical knowledge, he is more confident of what he knows about metaphysical modality than he is of how he knows about metaphysical modality", does not inhibit attempts at providing an account of modal epistemology. Thus, some recent accounts of modal epistemology were considered. These accounts include, (1) those who think we have modal knowledge because we have the capacity to conceive modal facts, and thus they claim that conceivability is a guide to possibility. (2) those who think access to modal epistemology is in logic, specifically the logic of subjunctive and counterfactual conditionals. These philosophers think that since subjunctive and counterfactual conditionals are ubiquitous in everyday reasoning, anyone who understands this logic *eo ipso* understands the logic of modal operators because the former entails the latter. (3) those who think that if we understand the concept used in the construction of modal statements, we would be able to use the understood-concepts in the modal realm.

Chapter 4

Answering the research question

4.1 Recapping earlier chapters

In chapter 1, a question was posed as guide to the structure of this paper. The question was; “Given the intelligibility of modal propositions; what is the acquaintance that we need?” Chapter 2 explains that the kind of acquaintance we need is modal acquaintance. Setting aside for a moment the development of modal acquaintance, chapter 3 critically analysed the prevalent accounts of modal epistemology. Lewis, Yablo, Chalmers, Williamson, Hill and Bealer were considered in this respect. Lewis simply asks us not to serve epistemology to the detriment of modality. The recent accounts will be revisited in section 4.2 to determine whether they offer accounts of modal justification. Section 4.3 then explains why modal acquaintance provides a straightforward way to an account of modal justification. Section 4.4 begins by explaining why the recent accounts fail to offer accounts of modal justification, and explains how modal acquaintance succeeds where the recent accounts failed. Section 4.5 gives a general conclusion to the thesis.

4.2 LMR and the recent responses to the ‘How We Know’ question

The following characters will be relied upon in this section.

- P_j : the counterfactual statement made by John that “If the tree were five feet tall, you would not have had this problem”.
- W_j : the possible world in which the antecedent and the consequent of P_j is true.
- Counterpart-longifolia: the tree in W_j that is five feet tall.
- Counterpart-Jerry: the individual in W_j whose garden contains the counterpart-longifolia.
- Actual-longifolia: the actual tree in Jerry’s garden that is twenty feet tall.

4.2.1 LMR and the understanding theory

For Bealer, we have modal knowledge if we determinately understand the concepts used in modal statements. Determinate understanding is the mode m of understanding such that, necessarily, for all subject x and property-identities p understood m -ly by x , p is true if and only if it is possible for x to settle with *a priori* stability that p is true. We take for granted that John is in a satisfactory cognitive condition of some level l such that those who listens to him know he is not demented, and he has a sufficient conceptual repertory c such that he distinctively could use longifolia (or any other words he uses) for a designated meaning. We also take for granted that John m -ly understands the term ‘longifolia’.

This is plausible on two fronts. (1) if anyone – say Jerry – were to be in the same cognitive condition and have the same conceptual repertory which John had, Jerry would have encountered the truth of P_j because he would elicit the same truth tracking intuitions as John when he asks himself whether P_j is true. (2) if there is a separate situation of distinct cognitive condition l^* that is as large as l and a conceptual repertory c^* that includes c , and John has both l^* and c^* , he would have also encountered the truth of P_j because the intuitions he would elicit as he asks himself whether P_j is true would confirm the truth of P_j in that situation also. Thus, on the presupposition that John already had *a priori* stability that P_j is true, we can say that John came to have the modal knowledge which P_j expresses because he determinately understands the concepts used in P_j .

If we opt for the alternative and say that John has no *a priori* stability that P_j is true, Bealer's system implodes, and there is no way to apply the system to LMR. Since this section aims to apply the responses to the 'How We Know' question to modal realism, then assuming that John already had *a priori* stability appears to be the only choice. In addition, if we say that John had not taken out time to consider (1), and that (2) has the faintest chances of occurring, then it is arguable that no one ever has *a priori* stability about the truth of anything; not even the woman in Bealer's example. This would be too much an implication, especially when we can rationally intuit that Bealer's argument holds some degree of truth on the matter. With these as premises, it suffices to say that the above supposition that John already had *a priori* stability only extends as far as the length of approval we are generous to give Bealer's argument.

John's access to the knowledge of the counterpart-longifolia depends strictly on whether he *m*-ly understands the concepts used in P_j , which in turn depends on whether John has *a priori* stability that P_j is true. If we think for a moment on the term 'understanding' itself, it appears that 'understanding' is epistemically dependent on some levels of experiential relation between 'who is understanding' and what is designated by what has some contextually dependent degree of similarity with 'what is being understood'. Generally, one cannot claim to understand a modal concept c (at least not in the way Bealer's *m*-ly understanding works) if one has never been in some quasi or real experiential relation with what c^* designates, where c^* is what has some contextually dependent degree of similarity with c . Morganti and Tahko reiterate this point when they challenged Lowe's position, which views 'understanding of essence' as our access to modal epistemology.¹ Let us return to the woman in Bealer's example to illustrate this.

The woman introduces the term 'multigon' for her specific usage and she *m*-ly understands multigon. But if she has never been in any quasi or real experiential relation with at least one member of the '-gon' family (pentagon, nonagon, square, octagon, and so on), it is not clear how she has such conceptual repertory to use multigon in the way she does. Multigon for her means 'any closed, straight-sided plane figure, or any closed, straight-sided plane figure with five or more sides', and it seems clear that this sort of meaning is only available to her only if, she had been in a quasi or real experiential relationship with at least one of the members of the '-gon' family in the past. Thus, it is arguably the case that determinate understanding (and any form of understanding used by other understanding theories) is epistemically dependent on some

¹ See, section 2.5 for an earlier mention of this. See also, Morganti and Tahko, 'Moderately Naturalistic Metaphysics', 2016, p. 28, for an elaborate discussion.

levels of experiential relation between ‘who is understanding’ and what is designated by what has some contextually dependent degree of similarity with ‘what is being understood’. Since the understanding theory works in this way, then it employs causal acquaintance, and as Lewis makes clear, possible worlds are causally isolated. As such, the understanding theories are in essence not compatible with the realist’s construal of modality and fail to offer an account of modal justification.

4.2.2 LMR and the counterfactual theories

According to Williamson, the logic of counterfactual conditionals generates the logic of necessity and possibility. Williamson gives three definitions each, for necessity and possibility in counterfactual terms. Since the case of John and P_j is a case of possibility, Williamson’s definitions of necessity are skipped. His first definition of possibility holds more promise than the other two and as such, they are also skipped.^{2,3} According to the first definition, A is possible, if and only if, it is not the case that, had A not held, there would have been a contradiction [(18): $\Diamond A \equiv \neg (A \Box \rightarrow \perp)$]. Under this definition, we can say that P_j is possible if and only if, it is not the case that, had P_j not held, there would have been a contradiction. If this is correct, then P_j and all metaphysical possibilities are *eo ipso* possible, because there would not have been a contradiction had they not held.

According to Hill, we can arrive at a logical definition of the necessity operator from subjunctive conditionals, and once we have this definition, we can safely generate a logical definition of the possibility operator from it. Simply stated, the logic of subjunctive conditionals provides access to modal knowledge. Hill’s strategy differs from Williamson’s in that he did not generate logical definitions of the necessity and possibility operators simultaneously. As such, his definition of the necessity operator may not be skipped. The definition states that A is necessary if for any whatever, if it were the case that the whatever holds, it would still have been the case that A [H2: $\Box A =_{df} (\Pi Q) (Q > A)$]. With this definition in place, Hill generated a definition for the possibility operator as follows: it is possible that A when it is not necessary that it is not A [H3 $\Diamond A =_{df} \sim \Box \sim A$]. Under this possibility operator definition, we can say P_j is possible if for any whatever, if it is not the case that were the whatever holds, it would still have been the case that P_j .

The counterfactual theories ask us to accept that the logic of subjunctive conditionals enables us to have modal knowledge. However, it sounds dubious that John has this kind of highly trained intuition through which he would have understood the logic counterfactual conditionals in this way. John may have never taken any class in logic. The plausibility of this claim leaves largely unexplained, how this sophisticated logic of counterfactual conditionals is to be understood. How we understand this sophisticated logic would remain unexplained even if we grant that (1) the logic of counterfactual conditionals generates the logic of modal operators and

² The second definition of possibility states that “it is possible that A if and only if, it is not the case that, if A had held, A would not have held” [(20): $\Diamond A \equiv \neg (A \Box \rightarrow \neg A)$]. Under this second definition, P_j and any other carefully constructed modal statements are possible because they would not be possible were they not possible.

³ The third definition states that “it is possible that A if and only if for some whatever, it is not the case that, if the whatever had held, A would not have held” [(22): $\Diamond A \equiv \exists p \neg (p \Box \rightarrow \neg A)$]. Under this third definition, P_j and any other carefully constructed modal statements are possible because for some whatever that would have made them impossible, if the whatever had not held, they would still have been possible.

(2) we use counterfactual reasoning habitually. Consequently, if we cannot say John understands the logic of counterfactual conditionals in this way, to say that he moved from such logic to a logic of modal operators is far-fetched. This might seem like a straw man, because sympathizers of the counterfactual theories may well argue that we can say the same thing about every rule of logic and in fact, about most philosophical theories. They would be correct, but this is not the main concern regarding the counterfactual theories.

Whether or not Williamson and Hill anticipated this problem when they added the caveat that “only those who understand the logic of subjunctives can understand the logic of modal operators”, is left as moot. The main concern here is that this caveat only moves the issue a step backward because some kind of identification criteria for those who understand this sophisticated logic is now required. Thus, maybe John understands this sophisticated logic or maybe he does not, may never be known because neither Williamson nor Hill gives such identification criteria. Also, if we suppose that understanding this sophisticated logic comes naturally to those with the trained intuitions of logic and philosophy, we only exacerbate the problem. This is because if we make this kind of supposition, we exclude a multitude of people who express modal statements in their everyday conversations. For instance, it seems trivial that John has a comfortable idea of what he was talking about when he uttered P_j . Strictly speaking therefore, the counterfactual theories are not satisfactory accounts of modal epistemology for the realist’s construal of modality.

4.2.3 LMR and the conceivability theories

Yablo suggests that we can know facts about a given metaphysical possibility if we can imagine a possible world and satisfy ourselves that the metaphysical possibility is true in the imagined world. On this foreknowledge, John imagines W_j , and he satisfies himself that W_j verifies the truth of P_j . Furthermore, Yablo explains that imagining works in this way: “the possibility of what we imagine is grounded only after we are able to imagine a world that verifies what we imagine”. Thus, there is no truth in the argument that John had prior knowledge that a fully-grown five-foot-tall longifolia can exist. It was after imagining the counterpart-longifolia in W_j that John realizes that the actual-longifolia could have been that five-foot-tall longifolia he imagined. According to Yablo therefore, John’s modal knowledge about the actual-longifolia is epistemically explained by John’s imagining of W_j and John’s satisfaction that W_j verifies P_j .

For Chalmers, if any variety of *a priori* conceivability entails possibility, it must be a variety of ideal primary conceivability, and the variety of possibility entailed must be primary possibility. Whatever is primarily conceivable, is either 1-possible (or necessary) or 2-possible (or necessary), where 1-possibility is a consequence of primary intension and 2-possibility, of secondary intension. 1-possibility (or necessity) is epistemic possibility (or necessity), and 2-possibility (or necessity), is metaphysical possibility (or necessity). 1-possibility is when the hypothetical situation is evaluated as the actual world, and 2-possibility is when the hypothetical situation is evaluated as a counterfactual. Following Chalmers, P_j can only be 2-possible because W_j is the counterfactual world where the antecedent and consequent of P_j is true. P_j is not 2-necessary because we already know that there are no such things as fully-grown five-foot-tall

longifolia in at least our world.⁴ Furthermore, Chalmers also argues that 2-possibility entails 1-possibility, that is, what is metaphysically possible is not epistemically impossible.⁵ Thus, the 2-possibility of P_j entails its 1-possibility. It is precisely because P_j is true in W_j , that enables John to know about it.

The conceivability theories fare better than the understanding and counterfactual theories. According to Yablo, it is in imagining that P_j is true in W_j that made John became aware of the possibility of the counterpart-longifolia's existence, and from there, knowing facts about the counterpart-longifolia, for example, that it is five feet tall. Likewise, if according to Chalmers, the 2-possibility of P_j makes P_j 1-possible, then John did not conjure up the existence of the counterpart-longifolia from his conceiving it. Rather, he was able to know about the counterpart-longifolia precisely because the counterpart-longifolia already existed in W_j . But we are only able to imagine or conceive those modal objects which are recombined⁶ from duplicate-parts of this-worldly objects. It seems an impossible feat to imagine or conceive modal objects that are not recombined from this-worldly objects. These are alien possibilities and as reckoned by most philosophers, describing what/how they are, is a feat yet to be achieved.⁷ It is safe to conclude then, that the conceivability theories pass as candidates for how to we acquire modal knowledge through modal acquaintance. There is a seemingly insurmountable problem for the conceivability theories. Bailey (2007) identifies this problem.

According to Bailey, conceivability is a subjective property, while metaphysical modality is usually taken to be mind-independent, and that it is not clear how to bridge the gap between the subjective and the mind-independent. It is not clear whether there is a total disconnection between conceivability and the mind-independent modal objects. But, if there is no total disconnection, what kind of connection exists between them? Does conceivability somehow force a correspondence of modal thoughts here in the actual world with modal facts there in possible worlds? If conceivability does not force such a correspondence – and surely, it does not, since possibilities are not of our own making –, then how does conceivability help us gain access to modal epistemology? Let us call this the Bailey-problem. The Bailey-problem incapacitates the conceivability theories in being a satisfactory epistemological account for a genuine modal realist. Thus, even though the conceivability theories are closer to a sufficient account of modal epistemology for the modal realist than the counterfactual and understanding theories, they are nonetheless unable to provide justification for our modal knowledge.

4.3 Acquaintance and justification

Justification comes in degree, that is, “to a first approximation, we can identify justification as a normative property that comes in degrees, and that lies in the near neighbourhood of what

⁴ Here, biology is taken as stable in our world, so that there are no purple cows in our world precisely because cow's DNA does not allow such complexion. Likewise, it is a matter of biological stability in our world that there are no fully-grown five-feet-tall longifolia in our world. This is built on a similar argument offered by van Inwagen (1998).

⁵ See, Chalmers, *The Character of the Consciousness*, p. 149.

⁶ Recombination is a Lewisian principle that advocates the generation of worldly objects from duplicates of another one or two world, where duplicates are entities with the same intrinsic properties. See, *On the Plurality of Worlds*, pp. 89-92 for the principle of recombination and pp. 61-62 for intrinsicness and duplication.

⁷ See for example, Lewis, *New Work for a Theory of Universals*, 1983, p. 362.

distinguishes true belief from knowledge”.⁸ To generalize, justification may be divided into inferential and non-inferential justification, and non-inferential justification distinguishes true belief from knowledge more than inferential justification. Arguably, most justifiers give inferential justification because such justification would be layered. For instance, suppose I have a true belief that there is a red tomato on the table. The justification I have for this belief may be seeing the red tomato on the table, the trustworthiness of memory (perhaps, I placed the tomato there some few minutes ago), the trustworthiness of testimony (perhaps, my friend whom I trust testifies to it) and so on. However, these sorts of justifiers were ultimately inferred from more basic inferential justifiers such as the reliability of sight (it has never turn out to be a hallucination after I claimed to have seen an object), the reliability of memory (if my memory is not reliable, I cannot trust it, perhaps, it has never failed to be accurate and that is why I could trust it in the first place), the reliability of testimony, and so on. Likewise, these more basic inferential justifiers, were also inferred from more grounded basic inferential justifiers, and the inference continues. The inference only stops when non-inferential justification is reached and acquaintance yields such non-inferential kind of justification.

Fumerton (1995) explains how acquaintance yields non-inferential justification. According to him, acquaintance yields non-inferential justification of a belief that *P* “when one has the thought that *P* and one is acquainted with the fact that *P*, the thought that *P*, and the relation of correspondence holding between the thought that *P* and the fact that *P*”.⁹ Thus, these three components must be present before acquaintance can yield non-inferential justification; (i) thought, (ii) fact and (iii) relation of correspondence holding between thought and fact. Fumerton reiterates, no single act of acquaintance of (i) or (ii) or (iii) yields non-inferential justification, but whenever the three acts of acquaintance work together, they yield non-inferential justification. Every non-acquaintance-yielded-justification for true belief is inferred from an acquaintance-yielded-justification, and the acquaintance-yielded-justification is itself not inferred from any other justification.

Furthermore, Fumerton explains that acquaintance is not just a source of non-inferential justification; it is also a source of infallible justification. Earlier in section 2.4, facts were defined as non-linguistic complexes, which consist in entities exemplifying properties such that worlds contain facts long before they contain minds. Thus, facts mirror reality and veridicality is, in a sense, a function of facts. That is, in believing that *P*, being acquainted with the fact that *P* makes *P* true. Before proceeding on the analysis of how acquaintance yields infallible justification, a little bit of clarity is needed here because two critical questions ensue from the analysis of facts and veridicality. (1) Do minds somehow force a structure on the world? (2) Do minds determine what is true or false about the world? Fumerton only gives answer for the first question; he assumes the answer to the second question is obvious. In his view, the world comes to us with too many differences for us to be bothered noticing all of them. He thinks the mind imposes order to the chaotic way in which the world comes to us. Thus, he thinks minds force structure on the world. Concerning the second question, he took for granted that his position on the truth of *P* as a result of acquaintance with the fact that *P* suggests a truth dependence of *P* on the

⁸ Plantinga, ‘Epistemic Justification’, 1986, p. 4.

⁹ *Metaepistemology and Scepticism*, p. 75.

acquaintance with the fact that P .¹⁰ In any case, the oversight is not fatal to his theory as it can easily be made clear.

The truth of P does not depend on the acquaintance with the fact that P . P has always been true since P is a fact and as we have seen, facts were in the world long before minds develop. We would only not know the truth of P until we are acquainted with the fact that P , and it is the assent to the truth by the mind that counts in justification, at least to the extent to which justification is an epistemic property of the subject. Thus, we can answer ‘yes’ to (1), but must say ‘no’ to (2). Let us now return to how acquaintance yields infallible justification. Unlike Fumerton, I am more comfortable with “in believing that P , being acquainted with the fact that P makes P true *for us*”. As earlier explained above, being acquainted with the fact that P is the second component needed for acquaintance to yield non-inferential justification. Thus, we can say the source of justification for any belief includes the very fact that makes the belief true for us. This is where I think Fumerton’s theory does better than externalist accounts of epistemic justification.¹¹ Most times, these accounts do not require the inclusion of the very fact that makes the belief true for us. This is probably because for the externalist, the fact mirroring any belief in reality is not important, what is important is the inherent truth of the belief. For example, in believing that the tomato is red, Fumerton requires the subject’s acquaintance with the fact that makes him believe that the tomato is red, whereas, the externalists only require that it is true that the tomato is red. Put succinctly, the fact that makes true a belief for us is not included in externalist accounts of justification. Following Fumerton therefore, acquaintance yields infallible justification precisely because the very fact that makes true for us the belief is included in the source of justification.

Concerning modal knowledge, the three components highlighted by Fumerton also must be present before modal acquaintance yield non-inferential and infallible justification. Consequently, we have (i) modal thoughts, (ii) modal facts and (iii) the correspondence holding between modal thoughts and modal facts, as the three components needed before we can have modal acquaintance with modal facts. Evidently, no argument is needed to demonstrate (i), because everyday reasoning is replete with modal thoughts (see arguments from Melia in section 1.2.1). Also, even though focus is on the philosophical kind of modal thoughts, no arguments will still be required. This is because the absurdity of modal nihilism concerning philosophical modality has already been presented. It suffices to state then that (i) is immediately before consciousness. Concerning (ii), this study has already established that modal facts are precisely the populations of possible worlds under the Lewisian modal realism framework. Although (iii) was mentioned in section 2.4.1, no analysis was carried out. Perhaps, the correspondence relation is, as Fumerton argues, like acquaintance in that it is *sui generis*, not like anything else, cannot be informatively subsumed under a genus, and cannot be analysed into any less problematic concepts.¹² To the extent that modal justification is our goal, Fumerton’s analysis of the

¹⁰ *Ibid*, pp. 77-79.

¹¹ I call them externalist accounts only to the extent to which not all components required for justification is internal to the subject. I do not mean that they take justification as an external affair. To reemphasize, epistemic justification is an internal affair.

¹² *Ibid*, p. 76.

correspondence relation is soft-pedalled. The correspondence relation holding between modal thoughts and modal facts is an analysable concept.

4.4 LMR and modal acquaintance

Earlier in section 2.4.2, in the discussion of modal acquaintance, it was argued that modal thoughts are true when they *correspond* to modal facts. Since modal facts are causally isolated in possible worlds, the Bailey-problem is given more vigour. In fact, the Bailey-problem as explained in section 4.2.3, challenges any account of modal epistemology, which operates within the framework of modal realism. As such, it was imperative to incorporate the recent accounts into LMR to see if they can explain how we have modal knowledge in the possible-worlds framework. Setting aside the inherent faults of these recent accounts, it is easily noticeable that the counterfactual and understanding theories, like the conceivability theories, proffer a subjective access to modal epistemology. Thus, like the conceivability theories, the counterfactual and the understanding theories are challenged by the Bailey-problem. I have claimed that modal acquaintance does a better job than this trio does, as such, it is incumbent on me to demonstrate how modal acquaintance surmounts the Bailey-problem. It is such demonstration that impels the soft-pedalling of Fumerton's view on the correspondence relation.

The correspondence relation holding between modal facts and modal thoughts is an equivalence relation. This was why I earlier claimed that even though we are modally acquainted with modal facts through our direct awareness of modal thoughts, the "being without the intermediary of any process of inference", which is a necessary condition for acquaintance, is not blocked. The correspondence relation is an equivalence relation because for all modal thoughts a and b , and modal fact c in a set of correspondence C , the following holds.

- (i) Reflexivity [aCa , bCb and cCc]: a modal thought corresponds to itself and a modal fact corresponds to itself.
- (ii) Symmetry [if aCb then bCa , if aCc then cCa and if bCc then cCb]: modal thoughts correspond to one another if at least one of them corresponds to a modal fact. In addition, when a modal thought corresponds to a modal fact, then the modal fact also corresponds to the modal thought.
- (iii) Transitivity [if aCb and bCc then aCc]: when one or more modal thoughts correspond to one another, and one of them correspond to a given modal fact, then the rest modal thoughts also correspond to the same modal fact.¹³

When more than one modal thought are members of a set with a modal fact, the assumption is that more than one rational subject forms the modal thoughts, precisely; n number of modal thoughts equals n number of rational subjects. These modal thoughts may not essentially be identical in all minute details, but they have to correspond to one modal fact. In addition, a given modal fact could be true in more than one world. When this is the case, then d – the other modal fact that is a member of the same set with a , b and c – also corresponds to c . In

¹³ In fact, the relation of correspondence is also Euclidean [if cCa and cCb then aCb]: when a modal thought corresponds to a modal fact, and another modal thought corresponds to the same modal fact, then both modal thoughts correspond to each other.

addition, d will be essentially identical with c in every minute detail because any difference in their intrinsic or extrinsic characters makes them different modal facts, in which case, they could not be members of the same set in the first place. Once d corresponds to c , then *ex hypothesi* the equivalence relation holds. In fact, one can multiply the number of modal thoughts and modal facts to whatever finite limit desired, perhaps, a hundred persons believe that “Obama could have been the 46th President of the USA” and the modal fact that “Obama is the 46th President of the USA” might be true in hundred possible worlds. In as much as the modal thoughts and the modal facts all members of the same set, the correspondence that holds among them is an equivalence relation. As such, modal thoughts are exclusively constituted by the modal facts, with which they correspond. There is nothing in modal thoughts that is not a composition of modal facts. But how do we know which modal facts our modal thoughts correspond to?

4.4.1 Threshold

Earlier in section 4.2.3, we saw that all and only those modal objects we can imagine are those that are recombined from duplicate-parts of this-worldly facts. Let us call this kind of modal facts, *category-1* modal facts and those, which we cannot imagine because they are recombined from duplicate-parts of otherworldly facts as *category-2* modal facts. A category-1 modal fact will have *threshold* in our world because at least one of its recombined parts is a duplicate-part of an object from our world. A category-2 modal fact will, by the same standard, lack threshold in our world. The same category-2 modal fact will have threshold in other worlds if and only if, at least one of its recombined parts is traceable to any fact in those worlds. Similarly, modal facts, which are category-1 in our world, are category-2 in infinitely many worlds. Thus, when I say category-1 modal facts hereafter, I mean category-1 modal facts relative to our world. Therefore, in any world, modal thoughts correspond to modal facts if and only if those modal facts have threshold in that world. But in what way does threshold conserve acquaintance?

No doubt, information does not flow among possible worlds and as such, even though cross-world duplication and recombination sufficiently generates threshold, it remains obscure how acquaintance is conserved by threshold. Firstly, the kind of acquaintance that exists between modal objects and us is modal acquaintance, and as we have seen, it is a non-causal relation and a built-in feature of the conscious state. It is also the relation we have with modal facts through the modal thoughts, which correspond to them. Arguably, we are not directly aware of modal facts, at least not in the standard sense in which ‘direct awareness’ is used as in causal acquaintance. In addition, in the analyses of modal acquaintance above, our pseudo direct awareness with modal facts is evidently mediated by modal thoughts. But this is mistaken and we already know why. Arguments had already been offered stating that the correspondence between modal thoughts and modal facts is an equivalence relation, such that modal thoughts are exclusively constituted by the modal facts they correspond to. Secondly, we can only form singular thoughts about category-1 modal facts and category-1 modal facts are precisely those modal facts that are generated through cross-world duplication and recombination. Thirdly, as pointed out in the ‘closest identifier’ argument, thoughts are all we have to show for philosophical modality. Let us now connect these three points to demonstrate how cross-world duplication and recombination conserves acquaintance.

1. Modal thoughts are all we have to show for philosophical modality.
2. Modal thoughts as thoughts *simpliciter* are legitimate objects of acquaintance.

3. Modal thoughts always correspond to category-1 modal facts.
4. Category-1 modal facts are generated from cross-world duplication and recombination.
5. The correspondence of modal thoughts to category-1 modal facts allows modal acquaintance.¹⁴

Although, already explained earlier in section 2.4.1, it is important to reemphasize that the correspondence of thoughts to facts is not translatable into the causal dependence of thoughts on facts. This is not just because facts do not directly cause thoughts, but also because, if modal facts directly cause modal thoughts, then the threshold thesis is an utter waste of time. Modal facts could have been left there in possible worlds since after all; they can directly cause modal thoughts here in the actual world. In addition, we may not rest on our oars and become content with the lack of causal dependency of thoughts on facts; so that we leave modal facts there in possible worlds and still claim that, our thoughts here in the actual world somehow correspond to them. This is because we would have to present an ontological explanation of the correspondence we claim exists between modal facts there in possible worlds and modal thoughts here in the actual world.

These problems highlight the importance of the threshold thesis because in it, we have such an ontological explanation. With threshold, we need not worry about modal facts, which are seemingly very isolated out there in possible worlds. Modal thoughts correspond to modal facts in as much as those modal facts have threshold in our world. In this way, the Bailey-problem can be boycotted with the aid of the threshold thesis. Consequently, by incorporating and establishing itself on threshold, modal acquaintance escapes the Bailey-problem. Modal acquaintance also makes clear what possibilities are knowable: only those that have threshold, those of category-1 are knowable. Threshold is an important thesis with far reaching importance and usefulness than the scope of this research. For example, it is here used to explain how modal acquaintance escapes the Bailey-problem but it can also be employed to explain how conceivability is a guide to possibility, and how the counterfactual and understanding theories yield access to modal epistemology (more on this in section 4.4.3). For now, let us consider with P_j , how modal acquaintance works with possibilities.

“If the tree were five feet tall, you would not have this problem” John said to Jerry. We have agreed that John’s belief is true because it is satisfied in w_I where a counterpart-longifolia is five feet tall. Thus, all that remains for John to have modal knowledge is the justification of his belief. I have said John is justified because he is modally acquainted with the modal fact his belief describes, in that he is directly aware of the modal thought which corresponds to that modal fact. John’s modal thought is exclusively constituted by the modal fact in W_j in such a manner that when he is directly aware of this modal thought, he is modally acquainted with the modal fact to which that modal thought corresponds. This is because the modal fact has threshold

¹⁴ Another direction of the argument is this. Since modal thoughts are legitimate objects of acquaintance, let us call the kind of acquaintance we have with them ‘modal acquaintance’. Modal thoughts always correspond to category-1 modal facts in such a manner that the latter exclusively constitute the former. Thus, when we are modally acquainted with modal thoughts, by the correspondence of modal thoughts to modal facts, we are also modally acquainted with category-1 modal facts. As such, cross-world duplication vis-à-vis conserve acquaintance.

in John's world. Could John have wrongly believed, so that there is no world in which a counterpart-longifolia is five feet tall? No. If we accept that there are infinitely many worlds, then it is unfounded to claim John's belief is not satisfied in at least one of these world (more on this in section 4.4.4). If John may not have wrongly believed, then John's modal acquaintance which justifies his modal belief may not necessarily be active during the conversational episode wherein John said the actual-longifolia could have been five feet tall. Since acquaintance yields non-inferential and infallible justification, John is not just justified in believing that P_j , he is also non-inferentially and infallibly justified.

4.4.2 Threshold and necessity

Recombination is not always symmetrical. We work from counterpart relation through duplication to recombination. Lewis states; "I deny that the counterpart relation is always symmetrical, but surely it often is".¹⁵ Given that counterparts differ from duplicates only because they have extrinsic properties, which duplicates lack, we can say counterpart relation supervenes on duplicate relation, in that there can be no difference of any sort in one without there being a difference of the same sort in the other. Thus, it follows that duplicate relation is also not-always symmetrical. But there is recombination with which duplicate relation also supervenes, and if duplicate relation and counterpart relation supervene, then recombination and counterpart relation supervene, for supervenience is a transitive relation. In this way, recombination becomes also a not-always symmetrical relation. By saying recombination is not always symmetrical, I mean it is not always the case that when a world supplies at least one of the parts that recombined to generate a certain modal object in another world, that the modal object in the second world also supplies at least one of the parts that recombined to generate the object¹⁶ in the first world. This was why the division of modal objects into category-1 and category-2 is relative to worlds. The counterpart-longifolia is a category-1 modal object relative to our world, but it is also a category-2 modal object relative to many other worlds.

For necessities, recombination is always symmetrical. It is always the case that when a world supplies the parts that recombined to generate a necessity in another world, that the necessity in the second world also supplies the parts that recombined to generate the same necessity in the first world. Recombination for necessities is not just symmetrical; it is also transitive. If there is a third world, and the parts that recombined to generate the same necessity in that world were supplied by the second world, then we can say the first world also supply the same parts. This is because transitivity allows us to make such inference since the first world supplies the parts that generated the same necessity in the second world. In addition, since recombination for necessity is in the first place symmetrical, then it is not just the case that the first world supplies the parts that recombined to generate the necessity in the third world, but also that the third world supplies the parts that recombined to generate the same necessity in the first world. For any given two worlds therefore, parts of any given necessity in one world recombined to generate the same necessity in the other world and vice-versa, and it does not

¹⁵ *On the Plurality of Worlds*, p. 195.

¹⁶ This is the object in the first world that supplies the part that recombined to generate the modal object in the second world.

matter how many worlds are in between these two given worlds.¹⁷ Thus, Recombination for necessities forms a circular chain that connects every world in epistemic space due its symmetry and transitivity.

Since threshold is a function of recombination, it is easy to see how recombination yields threshold for necessities. A circular chain that connects every world in epistemic space has already been constructed for how recombination generates necessities, so that when we think of a necessity, we have in one swoop, gone through the whole of epistemic space. This is because whatever we say about a necessity in that world is *ex hypothesi* said of every world due to the symmetry and transitivity of recombination for necessities. Thus, any given necessity has threshold in every world and by that token, it is a category-1 modal fact in every world, more precisely, a category-1 *necessary* fact in every world. This is the difference between possibilities and necessities: while possibilities are category-1 modal facts relative only to *some* worlds, necessities are category-1 modal facts relative to *all* worlds. The temptation to think that necessities should not be limited to the division of modal facts into category-1 and category-2 is a compelling one, but it should be resisted. This is because necessary falsehoods are necessities in their own rights. They are not true in any *possible* worlds, thus, necessary falsehoods are category-2 modal facts relative to *all* worlds.¹⁸

We have modal thoughts concerning metaphysical necessities and these modal thoughts are true when they correspond to category-1 necessary facts. If an object of thought is a necessity, then our modal thoughts about that necessity is always true because they will always correspond to that category-1 necessary fact: there is no room for error.¹⁹ When we are directly aware of our modal thoughts about necessities, we say we are modally acquainted with the category-1 necessary facts, with which our modal thoughts correspond. Since acquaintance yields non-inferential and infallible justification and we are now modally acquainted with metaphysical necessities, then we are justified when we have knowledge of metaphysical necessities. Let us consider an example.

We believe that “necessarily, $3+3=6$ ”. As we proceed, I will refer to “ $3+3=6$ ” as *fact* and as *modal fact*; what I mean respectively is that “ $3+3=6$ ” is true here in our world and also true in all possible worlds. Following recombination for necessities, parts of the fact that “ $3+3=6$ ” in our world recombined to generate the modal fact that “ $3+3=6$ ” in another world w_I . Given the symmetry and transitivity of recombination for necessities, we have covered the whole of epistemic space even if we have before our mind w_I . Parts of any given world w_n which recombined to generate the modal fact that “ $3+3=6$ ” in w_I also recombined to generate the fact

¹⁷ I do not mean that there is a linear arrangement to worlds in epistemic space, or even any arrangement at all. What I mean is that, most times, we imagine that there are many worlds and we use the closer than relation to talk about these worlds. Thus, once we can use the closer than relation, we can as well use the in-between relation to talk about worlds that are in-between two worlds, which are less close to each other.

¹⁸ There may be *impossible* worlds and in these worlds, such necessary falsehoods may be true. But to the extent to which LMR is agnostic towards impossible worlds, I need not bother with them here. Nonetheless, see, Yagisawa (1988), Vander Laan (1997) Zalta (1997) and Jago (2013) for discussions on impossible worlds.

¹⁹ In fact, the implication of this position, which is one I am willing to stand by, is that there is no room for error even when it comes to metaphysical possibilities. Once we can conceive it as a possibility, then, to the extent to which possibilities are not of our own making and to the extent to which epistemic possibility entails metaphysical possibility, then our modal thoughts concerning metaphysical possibilities always correspond to category-1 possible facts.

that “3+3=6” in our world. This is because the modal fact that ‘3+3=6’ in w_I recombined to generate the fact that “3+3=6” in our world. In addition, by the symmetry of recombination for necessities, parts of “3+3=6” in w_I recombined to generate the modal fact that “3+3=6” in w_n , and parts of the fact that “3+3=6” in our world recombined to generate the modal fact that “3+3=6” in w_I and w_n . Thus, our modal thought that “3+3=6” correspond to the category-1 modal fact that “3+3=6” in w_I and *ex hypothesi* in every other world. Thus, we are not just modally acquainted with the modal fact in w_I , we are also modally acquainted with the modal fact that “3+3=6” in all other worlds.

4.4.3 Threshold and other accounts of modal epistemology

Amongst the recent responses to the ‘How We Know’ question, the most straightforwardly in support of the threshold thesis are the conceivability theories. Earlier, in the definition of threshold, it was stipulated that in any world, threshold determines the classification of modal facts into category-1 and category-2, and that category-2 modalities are beyond the cognitive discernment of rational subjects, in whatever way imaginable and possible. The argument was that relative to our world, we would not be able to describe category-2 modal facts, however hard we tried because they do not have threshold in our world. The direct implication of this is that the threshold of category-1 modal facts in our world accounts for our cognitive capacity to conceive and imagine them. We may say this is no argument in that what it says can also trivially be said about other the counterfactual and understanding theories *mutatis mutandis*. We can easily say the threshold of category-1 modal facts also accounts for our cognitive capacity to counterfactually reason and to determinately understand them. But we do not resort to counterfactual reasoning or understanding in the formation of modal judgements, beliefs and thoughts as we resort to conceivability and/or imaginability. Shalkowski (1996) puts it better, “certainly, conceivability, broadly construed, plays an important role in forming modal judgements. It is hard to see how we could get started on the modal enterprise without it”.²⁰ We are naturally inclined to say we have modal knowledge because we can conceive or imagine modal situations and this natural inclination is owed to the threshold of modal facts in our world.

Counterfactuals are statements whose truth is evaluated in possible worlds. Counterfactuals are constructed by picking situations that could have happened in our world, and theoretically constructing a distinct situation out from them. For example, when Williamson says “had the bush been absent, the rock sliding down the mountainside would have ended up in the river”, what he did was to pick a situation – the absence of the bush – that could have happened in our world, and theoretically constructed a distinct situation – the rolling of the rock into the river – out from it. Stated succinctly, this is how counterfactuals are constructed: (i) the antecedent of a counterfactual requires an actual event as its foundation-event, (ii) the foundation-event is then negated, (iii) the negated-event becomes the *antecedent* of the counterfactual and (iv) a distinct situation called the *consequent* is theoretically constructed from the antecedent. In the above example, the foundation-event is “the presence of the bush”, which is an actual event. This foundation-event was then negated as “the absence of the bush”. The

²⁰ *Conventions, Cognitivism and Necessity*, 1996, p. 282.

negated-event becomes the antecedent of the counterfactual. Lastly, a distinct situation – the rolling of the rock into the river – is theoretically constructed from the antecedent as the consequent of the counterfactual. Since counterfactuals are evaluated in possible worlds, actual events are not the foundation-events of counterfactuals. What can be negated are the duplicates of actual events. Thus, the foundation-event is in essence a duplicate of the actual event and not the actual event itself. Given that threshold is a function of duplication, the threshold of counterfactuals in our world are their foundation-events.

To decide whether the understanding theories will or will not support the threshold thesis; we need to take a closer look at one of the understanding theories. The central theme among the understanding theories is that we can have modal knowledge if we understand the concepts used in modal statements. Take Bealer's own example. For all Bealer's careful and systematic analysis, it was found wanting in that modal facts or concepts whose conceptual designations we can determinately understand, are all and only those we have had some quasi or real epistemic relations with what the least similar thing to them designates. We also made the supposition that the member of the '-gon' family, with which the woman in Bealer's example had had a quasi or real experiential relations with was 'octagon'. Under this supposition, it follows that multigon was generated from the duplicate of octagon, and since threshold is a function of duplication, then the duplicate of octagon from which multigon was generated is the threshold of multigon in our world.

4.4.4 Threshold and available information

Threshold is not an epistemic property; it is an ontological property, which enables modal facts enter epistemic relations with rational subjects. Threshold flows from modal facts to modal thoughts and not the other way round. Threshold is not a fixed property of modal facts; it is relative to available information. Barwise (1997) provides a detailed analysis on the interdependency between information and possibilities.²¹ According to Barwise, "the correct elimination of any non-empty set of possibilities corresponds to a strict increase in the information available at the next stage in the investigation...Conversely, the acquisition of any new information corresponds to a strict decrease in the states that are possible".²² Before continuing, it is important to reiterate the tacit difference between alien possibilities and impossibilities for they are also affected by the increase in available information.

Alien possibilities are category-2 modal facts relative to *some* worlds in that they lack threshold in some world, whereas, impossibilities are category-2 modal facts relative to *all* worlds in that they lack threshold in every world. While it is true that the acquisition of new information corresponds to a strict decrease in *possibilities*, only the set of *alien possibilities* decreases when available information increases. The set of *impossibilities* do not decrease as available information increases. For any decrease in the set of impossibilities, epistemic space needs to be expanded to include non-epistemic space.²³ On the contrary, Barwise thinks the non-

²¹ He thinks the Lewisian extreme realism is not an adequate framework for his informationalism, thus, he opted for the Stalnakerian moderate realism. The aspect of his theory that appears here are those that presents better the interdependence between information and possibilities.

²² Barwise, 'Information and Impossibilities', 1997, p. 12.

²³ See, Bjerring, *Non-Ideal Epistemic Spaces*, 2010, Ph.D. thesis, for a detailed analysis on how to achieve this.

empty set of impossibilities increases when available information increase. In his view, impossibilities are those states that are incompatible with the currently available information.²⁴ There is no conflict in Barwise's (and in many other philosophers' who thinks information restricts impossibilities) account and mine in that while he (and those philosophers) is on an epistemological task with his informationalism, I am on an ontological one with threshold.

As earlier said, we do not have any grasp of alien possibilities and as such, it is expected that whatever seems incompatible with the currently available information is referred to as an impossibility. This is correct, epistemically, that is, when we are determining what is possible for a subject s . Determining what possibility subject s can know, impossibilities do not become possible even when available information increase, for whatever is impossible is impossible *simpliciter*. Rather, what become possible are alien possibilities, which turn out to have threshold in our world contrary to what we earlier thought given the available information at the time. Remember that unlike informationalism (and other epistemological accounts of possibility) which arguably flows from modal thoughts to modal facts, threshold flows from modal facts to modal thoughts. Thus, whatever happens to us here, whether or not the available information increases, the ontological status of modal facts stays the same. Possibilities do not become impossibilities, and impossibilities do not become possibilities. Rather, alien possibilities become possibilities and possibilities remain possibilities.

In addition, since threshold is a relative matter, the increase in available information corresponds to the increase in the number of modal facts that have threshold in our world. Suppose n number of modal facts have threshold in our world. At time t_1 , the available information i may only enable subject s have modal thoughts about $n-10$ modal facts. At t_2 , when the available information increases to $i+1$, s would now have modal thoughts about $n-9$ modal facts. At t_3 , $i+2$, and s would now have modal thoughts about $n-8$ modal facts. This will go on until i is saturated and can no longer increase, and even when that happens, n will still not have been exhausted. Thus, while increase in available information *decreases possibility and increases impossibility* for an epistemological account; increase in available information *should increase possibility and decrease alien possibility* for an ontological account. Concerning the availability of information at any time, Barwise states, "what information is available at any point in an inquiry is a context-sensitive matter, depending on the kind of possibility one is considering and on the progress of inquiry up to that point".²⁵ Thus, having satisfied the conditions for increase in available information, and if there is an increase in the available information, then category-1 modal facts increases and category-2 modal facts decreases.

If we expand epistemic space to include non-epistemic space so as to make room for impossible worlds, then we can make sense of modal thoughts about impossibilities. However, as said earlier in note 18, I need not bother with impossibilities here and now because LMR is agnostic concerning impossible worlds. Thus, if epistemic space is not expanded, then impossibilities are not modal facts to the extent to which they are not true in any possible world. Since threshold flows from modal facts to modal thoughts, then it suffices to say impossibilities do not have threshold anywhere in epistemic space, hence, their status as category-2 modal facts relative to all worlds *in epistemic space*. If as I have claimed, we can have modal thoughts

²⁴ Barwise, 1997, p. 12.

²⁵ Barwise, 'Information and Impossibilities', 1997, p. 12.

because the modal facts with which our modal thoughts correspond are those that have threshold in our world, then what do we have when we claim we are thinking about impossibilities? I think most times; we make modal errors when we claim we are thinking about impossibilities.

4.4.5 Threshold and modal error

When we make modal errors we wrongly believe that a given modal belief is true. Modal beliefs are true when they are satisfied in some possible worlds. Thus, under this notion, a modal belief is false if and only if, the belief is not satisfied in any possible world. Another way to explain modal error is to say we make modal error when our modal thought fails to correspond to any modal fact. Let us continue with the second way. A very useful example used by Yablo (1993) to explain modal error is the Kripkean case of Hesperus and Phosphorus. Yablo explained that the ancients might have imagined Hesperus outlasting Phosphorus, perhaps, because they were unaware of the fact that Hesperus and Phosphorus are the same planet. If an ancient had imagined Hesperus outlasting Phosphorus and so judged it possible for Hesperus to outlast Phosphorus, he or she, Yablo claims, have made a modal error. That is, the modal thought that Hesperus could outlast Phosphorus does not correspond to any modal fact, that is, there is no possible world where Hesperus outlasts Phosphorus.

There are two ways in which we can analyse modal error and threshold. Firstly, being in modal error is an epistemic state and to the extent to which possibility is a pragmatic matter,²⁶ I find it unsatisfactory to say anyone who believed like the ancients may have believed, has made a modal error. What if, the believer had agreed to disregard the necessity of identity, which makes Hesperus necessarily the same object as Phosphorus? Until, we are certain of the relevant issues with which we are relativizing possibility, all issues about modal errors should be suspended. Secondly, most times, we give metaphysical possibility a privileged ontological status. This is because we often say whatever exists in a possible world, does so because it is metaphysically possible. Under this notion, if subject *s* makes a modal error when he thinks it possible that Hesperus outlasts Phosphorus then it is metaphysically impossible for Hesperus to outlast Phosphorus. Consequently, a subject *s* only makes a modal error when his thought concerns impossibilities. To the extent to which impossibilities do not have threshold in any world in epistemic space, a subject *s* can make modal errors because his modal thoughts fails to correspond to any modal fact. Under the threshold analysis therefore, modal errors cannot be made with possibilities or necessities for they always correspond to category-1 modal facts. Modal errors can also not be made with alien possibilities since we do not have any grasp of them. Modal errors can only be made with impossibilities.

I have no idea what we think (or believe) when we claim to be thinking about impossibilities (or that such and such is impossible). This is because I fail to see how such thought or belief would be *determinately descriptive*. Roughly, a belief is descriptive when its content is not generic but particular. A belief content is generic when it is of the form; “*s* believes that *p*”. Whereas, a belief content is particular when it is of the form; “*s* believes that *p* is of such and such character”, and only particular beliefs can be determinately or

²⁶ See, Stalnaker, *Inquiry*, 1981.

indeterminately descriptive. A particular belief is determinately descriptive if we can on first appearance, discern all there is to discern about it. A particular belief is indeterminately descriptive when we cannot on first appearance, discern all there is to discern about it. It is easy to see then that “John believes that P_j ” is particular and determinately descriptive in that John knows on first appearance, all there is to know about P_j . He knows that the tree is a longifolia (and all that comes with being a longifolia), that it is five feet tall (contingent facts), that it is in Jerry’s garden and that an electricity cable passes some few meters away from it (extrinsic facts), etc. Thus, possibilities are determinate in an atomic sense, that is, they explicitly mean what on first appearance, we can discern from them. Necessities too are determinate in this sense. We know all there is to know about necessities in that we know that for any whatever, if the whatever had held, any necessity would still have held. It suffices to conclude then that we are epistemically omniscient when we have beliefs about possibilities and necessities. However, with impossibilities, we are not so epistemically omniscient because beliefs about impossibilities can only be indeterminately descriptive.

At best, we are only quasi epistemically omniscient when we have beliefs about impossibilities. For example, consider “ $3+3\neq 6$ ”. What do we think, believe or know when we consider “ $3+3\neq 6$ ”? I really do not know, but I know this: what remains unintelligible and unexplainable when we consider “ $3+3\neq 6$ ”, outweighs what would be intelligible and explainable. Surely, we do not on first appearance, discern all there is to discern about impossibilities, in which case, they are not determinate in an atomic sense. In addition, I sincerely doubt whether on any rational reflection, which may be higher than a first appearance approximation, those aspects of impossibilities, which remained unintelligible and unexplainable would become intelligible and explainable. This is precisely the reason we are only quasi epistemically omniscient concerning beliefs about impossibilities. It is safe to conclude then that (i) impossibilities are trivially opaque on first appearance and (ii) non-trivially opaque upon rational reflection. The truth of (i) lies in the fact that impossibilities are not determinate in an atomic sense. (ii) explains why I sincerely doubted that any rational reflection would make intelligible and explainable those aspects of our beliefs concerning impossibilities that were unintelligible and unexplainable.

The view that we are only quasi epistemically omniscient concerning beliefs about impossibilities is grounded in the *exportation principle* which Lewisian worlds obey. According to the principle, “if world w represents something as being an F , then something is an F . For [...] w contains an F as a part. And as w is part of the totality of being, that particular F too is part of the totality of being: so something is an F ”.²⁷ Now, suppose we allow impossible worlds. We would have to accept that given the exportation principle, we can export anything from impossible worlds, that is, anything is part of reality. Suppose we represent the impossibility “ $3+3\neq 6$ ” as Fx , and any arbitrary sentence G , such that we have $G \wedge Fx$ in an impossible world w' . Absurdly (either by classical or paraconsistent logic), the exportation of Fx entails the truth of G *simpliciter*. Thus, impossibilities are non-trivially opaque upon rational reflection because they

²⁷ Jago, ‘Impossible Worlds’, p. 717.

entail the truth of any sentence. To the extent to which we do not take into consideration all formable and constructible sentences when we have beliefs about impossibilities, not even rational reflection can make every aspect of a belief about impossibility intelligible and explainable.

The case of alien possibilities is straightforward. We simply are incapable of forming descriptive beliefs about them because our beliefs content about them is generic, that is non-descriptive. This is because, the best we can say about alien possibilities is, “we believe that there are alien possibilities”. As such, we cannot make modal errors when we form beliefs about alien possibilities. This is not because we are always correct when we have beliefs about alien possibilities, rather, it is because our beliefs about alien possibilities lack the content that can be true or false. Only descriptive beliefs can be true or false, that is, we can only say such and such beliefs is true in possible worlds when we know precisely what those beliefs describe, and beliefs about alien possibilities are not descriptive since their content is generic.

Generally, therefore, modal errors can only occur when a belief content is descriptive. Thus, since we only have descriptive beliefs with possibilities, necessities and impossibilities, we can make modal errors only with possibilities, necessities and impossibilities. However, while possibilities and necessities are determinately descriptive, impossibilities are indeterminately descriptive. As a result of their determinate descriptiveness, our beliefs about possibilities and necessities are always true in that we are epistemically omniscient about them and can satisfy that they are verified by possible worlds. Whereas, as a result of their indeterminate descriptiveness, our beliefs about impossibilities are not always true in that we are only quasi epistemically omniscient about them and cannot satisfy that they are verified by possible worlds (or even impossible worlds). Since our beliefs about impossibilities are not always true, they could be true or false and when they are false, we make modal errors when we hold such beliefs.

4.5 Conclusion

- MA1: We have modal knowledge.
- MA2: Taking modal scepticism seriously involves presenting an account of modal epistemology.
- MA3: We have such accounts in the conceivability theories of Yablo and Chalmers; the counterfactual theories of Williamson and Hill; and in the understanding theory of Bealer.
- MA4: Acquaintance is fundamental to our cognitive faculties such that that every proposition intelligible to us are composed wholly of constituents with which we are acquainted, for a constituent with which we are not acquainted is unintelligible to us.
- MA5: Any knowledge claim acquired in the manner described by MA4, is non-inferentially and infallibly justified.
- MA6: By MA4, modal knowledge needs to be grounded in acquaintance because modal propositions are intelligible to us.
- MA7: Possible worlds are causally and spatiotemporally isolated from us.

- MA8: For MA6 to hold, MA7 needs to be conserved.
- MA9: None of the accounts of modal epistemology mentioned in MA3 conserves MA7.
- MA10: Only modal acquaintance conserves MA7 since it incorporates threshold.
- MA11: From MA5 and MA10, modal acquaintance provides an account of modal justification.

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