The necessity of metaphysics

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The Necessity of Metaphysics

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ABSTRACT

The purpose of this thesis is to demonstrate that metaphysics is a necessary discipline – necessary in the sense that all areas of philosophy, all areas of science, and in fact any type of rational activity at all would be impossible without a metaphysical background or metaphysical presuppositions. Because of the extremely strong nature of this claim, it is not possible to put forward a very simple argument, although I will attempt to construct one. A crucial issue here is what metaphysics in fact is – the nature of metaphysics. The conception of metaphysics which I support could be called Aristotelian, as opposed to Kantian: metaphysics is the first philosophy and the basis of all other philosophical and scientific inquiry. I will argue that this is indeed the most plausible conception of metaphysics.

The thesis consists of a brief historical introduction of certain important views concerning the nature of metaphysics, namely Aristotle's, Kant's, Carnap's and Quine's, and of a longer survey of the status of metaphysics in the context of contemporary analytic metaphysics. I make some critical observations of recent accounts by people like Hilary Putnam, Michael Dummett, Frank Jackson and Eli Hirsch before launching into a thorough analysis of the relationship between metaphysics and other philosophical and scientific disciplines.

The central argument of the thesis is that our a priori capabilities, which I claim to be grounded in metaphysical modality and ultimately in essences, are necessary for rational inquiry. Detailed accounts of a priori knowledge and modality will be offered in support of this claim. In fact, my accounts of the a priori and modality are perhaps the most important contributions of the thesis, as given this basis, the 'necessary' role of metaphysics in other disciplines should be quite obvious. I also pursue topics like the metaphysical status of logic and the law of non-contradiction as well as truthmaking, the substance of metaphysical debates, and the methodology of metaphysics. There is, however, a distinct theme which connects the broad range of topics that I discuss: they are all analysed from a metaphilosophical point of view. Indeed, it could be said that this is a metametaphysical survey of the status of metaphysics. The upshot is an original account of the status of metaphysics in contemporary analytic philosophy – the conclusion that metaphysics is the core of all our rational activities, from natural science to logic, semantics and truth.

Preface

This thesis is the culmination of a problem that has puzzled me since I was a little boy. I can finally formulate that problem accurately: what is the fundamental structure of reality and how can we reach knowledge about it? To answer this question – to even approach it – we need to turn to a discipline called metaphysics.

My sympathies have always been with an Aristotelian, realist conception of metaphysics. During my philosophical career I have repeatedly tried to convince others that this is how we should understand metaphysics and this thesis is my latest effort to establish that. My Master's thesis, *Grounding Metaphysics: Metaphysical Necessity and Essentialism* (2005), which I did at the University of Helsinki, focused on the technical details of grounding a realist metaphysical system. In this thesis I have developed on many of the same themes, but I have taken a more metaphilosophical approach here.

Some of the results in this thesis have already been shared with the philosophical community. I have presented drafts of many of the chapters at international conferences around Europe, including Italy, Greece, Czech Republic, The Netherlands, Spain and the UK. I am grateful to the organisers and audiences of these conferences. A paper presented at Metafisica 2006 in Rome in July 2006, 'Metaphysics in Natural Science', which is based on the fifth chapter of the second part of the thesis, is forthcoming in the conference proceedings. Another paper, based on the first chapter of first part, 'The Aristotelian Method and Aristotelian Metaphysics', is forthcoming in the proceedings of the 2nd International Conference on Philosophy which was held in Athens in June 2007.

Preface

A paper entitled 'The Metaphysical Status of Logic', which is based on the 11th chapter of Part II, is forthcoming in the proceedings of LOGICA 2007, held at Hejnice Monastery, Czech Republic, also in June 2007. Finally, a paper based on chapter eight of Part II, 'A New Definition of A Priori Knowledge: In Search of a Modal Basis' is forthcoming in the journal *Metaphysica* (Vol. 9, No. 2, April 2008).

My greatest debt is to my supervisor E. J. Lowe. His *The Possibility of Metaphysics* (1998) gave me hope of defending metaphysics proper, and was in fact the main motivation behind my Master's thesis. I have been fortunate enough to work with the best possible person in regard to the project, and I am indeed very grateful. I would also like to express my gratitude to my friends and family in Finland who have supported me in many ways. The graduate community at the philosophy department in Durham deserves to be mentioned as well, I have had many insightful discussions with Lloyd Taylor, Paul Winstanley and Donnchadh O'Conaill, among others.

During my time in Durham, I have received financial support from a number of sources. In 2005 I received an award from Helsingin Sanomain 100-year Foundation to fund the first year of my research. In 2007 I was accepted for a Teaching Fellowship scheme run by the Centre for Science Outreach of Durham University and funded by the County Durham Economic Partnership and the Ogden Trust. Finally, in 2007 I was awarded a prize by the Finnish Cultural Foundation for the completion of the thesis. I am most grateful to all of these institutions.

Contents

Introduction

The primary purpose of this thesis is to defend a certain conception of metaphysics. According to this conception, metaphysics is a necessary discipline: whenever we engage in philosophy, science, or any rational activity whatsoever, there will be some metaphysics involved. In fact, metaphysics is a necessary precondition for all rational activities. Because of the extremely strong nature of this claim, it is not possible to put forward a very simple argument. The first question that has to be dealt with is what metaphysics *is*. Thus, not only will we be dealing with metaphysics, but also metaphilosophy, or, to use an emerging term, metametaphysics. Having said this, I *will* put forward a structured argument for the necessity of metaphysics. It will have to be done in a piecemeal fashion, as there are a number of difficult problems to settle along the way. The key issues in this regard are the nature of a priori knowledge and its role in metaphysics, modality and what it is grounded in, and the relationship between metaphysics and natural science. The upshot of the thesis is a defence of a realist conception of metaphysics, its role in philosophy, and its importance for natural science; we will see that there is a fundamental continuity between metaphysics and science.

Firstly, I should outline the main argument for the necessity of metaphysics. The initial hypothesis is that we need some kind of a metaphysical framework to be able to pursue other topics, even supposedly 'purely' empirical ones, such as natural science. The first part of the argument will motivate this claim by an examination of scientific methodology. It will be argued that in a very clear sense, natural science relies on a priori reasoning. Observations of scientific thought experiments will be used to

corroborate this claim. More importantly, however, it must be clarified what is meant by 'a priori' here, for my understanding of it is certainly not the traditional one. My contention is that the a priori deals with possibilities, namely, a priori reasoning is a delimitation of the possible. Thus, an account of modality is also needed. I will offer a defence of genuine or metaphysical modality and suggest that it is grounded in the identity and existence conditions of different kinds of entities, i.e. essences. This links the argument together: once it is established that empirical information is not 'purely empirical', but has some a priori elements, we have a direct argument from natural science to metaphysics. The task is considerably easier with other philosophical disciplines, as most philosophers acknowledge the use of a priori reasoning to start with.

The thesis is divided into two main parts, the first part is concerned with some of the major views that have influenced the debate over metaphysics, the second will deal, among other things, with the topics that I mentioned above – it is an analysis of the nature of metaphysics. We will have to go as far back as Aristotle to launch the discussion: in the first chapter of the first part I will discuss the Aristotelian method of philosophising, where metaphysics plays an important part. In fact, it could be said that the understanding of metaphysics that I will be defending is Aristotelian in spirit. However, when I talk about Aristotelian metaphysics, it is not so much his ontological system that I am referring to, but rather the method of philosophising and the role of metaphysics in this method. Here we also have perhaps the best account of what metaphysics is: the first philosophy, study of the most fundamental nature of reality. Unfortunately, this rigorous and above all realist understanding of metaphysics was later dismissed. We need to see what can be salvaged.

The new, revised understanding of metaphysics was of course due to Kant, whose take on the possibility of metaphysics will be examined in the second chapter. Kant was more of a sceptic when compared to the rigorous realism of Aristotle, but if nothing else, he genuinely pondered the question of how metaphysics could be possible 'as a science', that is, how could it reach the certainty of science. He quickly dismissed the dogmatic type of metaphysics put forward by Leibniz and Wolff and concluded that knowledge of the world *an sich* is unreachable. I will argue that what drives Kant to this sceptical conclusion is a too strict notion of the a priori. As we know, he thought that a priori truths are necessary truths, and this contention later seemed to undermine his account, as some of his examples of these supposed necessary truths turned out not be even actual. But we should not dwell on this, Kant's project has a lot to offer to realists as well, if we make some minor amendments. With a revised conception of the a priori, Kant would have been a step closer to Aristotelian metaphysics himself. After all, he also derived his categories of understanding from Aristotle's categories.

The same cannot be said about Rudolf Carnap, whose anti-metaphysical project will be the subject of the third chapter. Carnap's project is a good representative of the ideas of the philosophers associated with the Vienna Circle. In general, logical positivism is perhaps the widest and certainly most systematic attack against realist metaphysics. The effects of this 'linguistic turn' are quite apparent in contemporary philosophy as well, and in the course of this thesis we will return to the same issues over and over again. The initial target of the attack, however, was the sort of dogmatic metaphysics that already Kant was suspicious about. Carnap specifically mentions Spinoza, Schelling and Hegel; the latter two were a part of the counter-reaction towards Kant. The crucial issue,

again, will be a priori knowledge. Carnap's project, which is faithful to verificationism, is obviously hostile towards anything that is not empirically verifiable. For good reasons, such a radical approach is not very popular now, but it will serve us well to examine Carnap's position in detail, as the same ideas have been later repeated in subtler forms.

It should come as no surprise that the next, fourth chapter will deal with Quine. Our discussion of Quine will not be exhaustive by any means, but there are some issues that have to be addressed. First of all, Quine has quite a bit to say about Carnap's project and there are some remarks that might be of use to us. Secondly, Quine is sometimes said to have made metaphysics possible again and we would do well to see to what extent this is true. Finally, the famous papers that Quine wrote about ontological commitments and ontological relativity are unavoidable in this connection, and of course very hostile towards the Aristotelian conception of metaphysics. Again, it is impossible to even start to cover all the related issues, but I will suggest one line of thought that helps us to turn Quine's own tools against him: his blind trust in science is the weak spot.

There are a number of routes that our discussion could take after Quine. Limitations of space force me to skip the majority of them, so in chapter five I merely summarise where Quine has left us and what we should focus on when moving on to the second part of the thesis. I will start the second part of the thesis by discussing the views of a number of contemporary figures in metaphysics. My choices in this regard could certainly be questioned, but they are in line with what follows in the later chapters, as all of the discussed philosophers have been involved with the specific issues that I will

concentrate on.

The first contemporary figure that will be discussed is Hilary Putnam. His critique of metaphysical realism is no doubt among the most influential ones. As with Quine, so with Putnam: it is impossible to cover his extensive production fully. We will return to Putnam in many of the chapters that follow, but the first one is concerned with a very specific objection: metaphysical realism presupposes a 'ready-made' world. This objection is largely independent of Putnam's relativistic framework and because of this it deserves to be discussed separately. Putnam's discussion in this regard is based on a critical examination of metaphysical realism's take on causation and essentialism.

Given the enormous influence that Putnam's own project, pragmatic or internal realism, has had, it would not be wise to ignore it altogether. The main theme of chapter two is to examine what kind of a threat Putnam's own project poses to metaphysical realism. We will also look at the views of Michael Dummett and Nelson Goodman, which are on the same lines. The principal argument derived from this tradition is that metaphysical realism is unable to offer a plausible theory of truth, as direct correspondence is unsatisfactory. However, at this point it must be noted that even though the Putnam-Dummett-Goodman understanding of metaphysical realism might be closer to the Aristotelian conception than Carnap's was, it is still not clear that their critique succeeds to grasp, not to mention challenge, the core of Aristotelian metaphysics as I have defined it. Thus, chapter two will also be an enquiry into what metaphysical realism in fact amounts to. We will return to the issue of metaphysical realism and truth in chapter ten.

A different, but equally serious threat to metaphysical realism has been put forward by Frank Jackson. This critique is based on the idea that metaphysics, and indeed philosophy, is merely conceptual analysis. In chapter three we will examine this view as it has been defended by Jackson. Some of the themes of the discussion are derived from Putnam, as his Twin Earth scenario is Jackson's main example. The issue reduces to a discussion about in what sense conceptual analysis gives us a priori results and what they amount to. A crucial part of the argument relies on two-dimensional modal semantics, a framework used also by David Chalmers and others. There are some very subtle issues here, which we will discuss in detail and return to later in chapter nine. In chapter three I will argue that Jackson's project fails, because he gives us no good reasons to adopt the understanding of modality that his framework requires, i.e. that all modality is conceptual modality, and is also unable to give a satisfactory account of a posteriori necessities.

In chapter four I will consider an example of the sort of metaphysics that we would get if Jackson's arguments were correct: a watered-down metaphysics. One of the most eloquent proponents of this sort of metaphysics is Eli Hirsch. It is plausible that the tendency towards watered-down metaphysics – metaphysical problems understood as linguistic problems – is rooted in the 'linguistic turn'. Here we can see that Carnap's tradition is alive and kicking. These modern challengers are more slippery though: most of the time they acknowledge the logical conclusion of their views, that is, relativism. Then again, Hirsch claims that he can nevertheless offer us answers to our metaphysical problems. However, as we will see, it is very hard to provide any intelligible answers to metaphysical problems from these grounds. For instance, Hirsch's account of

persistence and identity falls short because of some very rudimentary category-mistakes. We will return to Hirsch and the idea that metaphysical debates might be linguistic in chapter thirteen.

The next three chapters will deal with the relationship between metaphysics and natural science. In the fifth chapter I will show, with the help of several examples from natural sciences (mainly physics), that there is a distinct element in the formulation of scientific hypotheses and it appears that we have good reasons to think that it is an a priori element. The examples range from Democritus and Galileo to Newton and Einstein, the crux will be quantum mechanics. Already here I will suggest that the sharp distinction between a priori and a posteriori knowledge – the former usually associated with metaphysics and the latter with natural sciences – is groundless.

The sixth chapter will directly continue on the theme of the fifth. We will take a closer look at scientific and philosophical thought experiments and examine their relationship. There is some recent literature that has to be acknowledged here, arguments for and against my suggestion will be considered. I will further motivate the connection between thought experiments, theory-forming in general and a priori reasoning by clarifying the methodology behind this connection. In addition, it needs to be settled when thought experiments are good and when they are bad, as someone who is suspicious about my interpretation might claim that, for instance, philosophical thought experiments are always bad ones. I will point out some bad thought experiments, but it will be argued that there is no distinction between philosophical and scientific thought experiments, rather, they are all philosophical. Finally, the connection between the a

priori grounds of thought experiments and metaphysical modality will be introduced.

To conclude the discussion about the relationship between metaphysics and science, I will consider how the connection that was introduced in the two previous chapters affects metaphysics. So, in the seventh chapter it will be examined what kind of influence science has, or should have, towards metaphysics. I will suggest a distinction between a general and a specialised effect: the general a posteriori framework of science obviously affects metaphysics in that metaphysical theories have to be consistent with established scientific results. Additionally, there are more specialised cases of interaction, perhaps the most apparent cases are between neuroscience and the philosophy of mind. Furthermore, a number of interesting examples can be derived from quantum mechanics and we will consider how, why and when the results of quantum mechanics might require us to amend our metaphysical framework.

As I have indicated above, I think that there is a great ambiguity about what a priori reasoning exactly is, and perhaps an even greater one about what is the relationship between a priori knowledge and metaphysics. In the eighth chapter I try to clarify these issues and to show that the traditional conception of the a priori as put forward by the early rationalists is untenable. It will be argued that a plausible understanding of a priori and a posteriori knowledge has to acknowledge that they are in a constant bootstrapping relationship. It is also crucial that we distinguish between a priori propositions that hold in the actual world and merely possible, non-actual a priori propositions, as we will see when considering cases like Euclidean geometry. Furthermore, contrary to what Kripke seems to suggest, a priori knowledge is intimately connected with metaphysical

modality, indeed, grounded in it. The task of a priori reasoning, according to this account, is to delimit the space of metaphysically possible worlds in order for us to be able to determine what is actual. It will also be shown that the modality that a priori reasoning is concerned with has to be genuine or metaphysical modality. The upshot of these results is that a priori reasoning is concerned with metaphysical possibility; its task is to delimit the space of metaphysically possible worlds. Consequently, we cannot reach knowledge about what is actual before we know what is possible. However, our a priori capabilities are integrated with established a posteriori results and this underlines the importance of dealing with these forms of knowledge in parallel.

The next, ninth chapter will examine the nature of modality. The main focus will be on the debate over metaphysical modality and conceptual/epistemological modality. We will take a look at some recent accounts about these matters, such as Frank Jackson's and Kit Fine's views on modality. There appear to be three possible routes that we can take: 1) we can argue that the distinction between metaphysical and conceptual modality holds, at least to some degree, and that they are both 'genuine' types of modality, 2) we can hold that the distinction fails and that modality is grounded on concepts or something similar (cf. Jackson), or 3) we can try to show that metaphysical modality is the only genuine type of modality and conceptual modality is reducible to it (if indeed it is modality in the proper sense at all). I will defend the third option. The obvious question that follows is: what grounds metaphysical modality? It will be argued that Kit Fine's account, i.e. that metaphysical modality is grounded in essences, is the most promising approach. Finally, I will examine how an essentialist view on modality can be coherently structured. It will be useful to approach the issue via some classic examples

of metaphysical necessities, such as 'Hesperus is Phosphorus'. Even though Kripke pointed out something important about examples like these, namely that they are a posteriori necessities, there is quite a bit more at issue here. It needs to be emphasized that there is an a priori part in a posteriori necessities, but this is not all – the crucial issue is that this a priori part is not reducible to concepts. In fact, as I will argue, the a priori part in a posteriori necessities is based on essences. Thus, here we have our route from a priori reasoning to essences, which is exactly what was needed to uphold the argument for the necessity of metaphysics.

In the next chapter we will return to the issue of truth, which was briefly discussed in the second chapter. The Putnam-Dummett-Goodman line of criticism against metaphysical realism is largely based on undermining the correspondence theory of truth. A potential response to this criticism is provided by the theory of truthmaking. In chapter ten I will examine the plausibility of the truthmaker principle. My focus will be on how it could be combined with a realist metaphysics so that the problems familiar from recent literature can be avoided. The central issue here is whether truthmaking is compatible with radically different anti-realist approaches, such as pragmatism and idealism. Judging from the recent discussion it indeed appears to be so, but the question is: does this pose a problem for combining realism and truthmaking? I will argue that there is little threat towards metaphysical realism from the debate over truth. If it is agreed that the truthmaker principle is plausible and compatible with metaphysical realism, then it seems that its potential compatibility with anti-realist ontologies in addition causes no problems. The upshot of this is that truthmaking offers us an efficient way to counter the Putnam-Dummett-Goodman line of anti-realism, as it is largely

based on the criticism of direct correspondence and metaphysical realism's inability to put forward a plausible theory of truth. But if the truthmaker principle is a plausible theory, as I will argue, then we have a very straightforward way to deal with this objection.

In chapter eleven I will address a worry which has recently gained more and more ground: this is the worry over our core logical principles, especially the law of non-contradiction. The idea that there are true contradictions in the world, which has become popular mainly due to Graham Priest's work, relies on familiar paradoxes such as the Liar, but also on paradoxes concerning motion, and even on quantum mechanics. I will argue that none of these are sufficient to challenge the law of non-contradiction. After arguing that our core logical principles are relatively safe, I will pursue a topic that has been very much neglected: the relationship between logic and metaphysics. My hypothesis is that, in most cases, metaphysics is prior to logic. The view that I will put forward suggests that in a perfectly clear sense, there is a One True logic. However, this does not mean that there could not be several compatible representations of it, nor that we could ever reproduce it with full accuracy. The basic idea here is that logical principles are approximations of the governing features of reality, inasmuch as they attempt to say anything about reality at all. This is the crucial point: many logical systems are closed mathematical systems that do not necessarily have any bearing on the world, such as paraconsistent logics. This is fine, but we must be wary of any attempts to derive ontological conclusions from these systems. For the purposes of metaphysics, our logic must reflect reality as accurately as possible.

A very common view about logic is that it is grounded in language or grammar. But language does not appear to be very fundamental, indeed, we can ask: what grounds language? In chapter eleven I argue that logic is grounded in mind-independent reality rather than language, and in chapter twelve I will suggest that so is language. In fact, the common features of logic and language are plausibly due to their similar origin. A detailed study of language belongs to the department of linguistics, and it is quite likely that many features of language are not easily reducible to the common features of reality, as language is constantly under both artificial and natural development. Nevertheless, we can clearly see that especially the semantics of natural kind terms reflect, or should reflect, the features of the reality, that is, the general essences of different kinds of entities. The main purpose of chapter twelve is to defend this claim by looking at familiar examples about the semantics of natural kinds, mostly due to Putnam.

There is another language-related worry that must be addressed, for it is sometimes suggested that at least some metaphysical debates are merely linguistic or non-substantial. Chapter thirteen will focus on this issue. In this case, I will take the middle way, as it seems to me that some debates are really non-substantial, although the majority are over genuine issues. The problem that we are faced with here is how to determine whether a debate is substantial or not. I will examine some well-known debates which will serve as examples of what kind of criteria we might have to settle this problem. There are three sorts of cases. Firstly, a debate can be underdetermined and thus compatible with several different accounts. In this case it is obvious what we must do: the initial formulation of the problem has to be amended. Secondly, we might

have a debate that is sufficiently formulated, but we lack crucial empirical information to be able to settle whether there is a genuine issue at hand. Furthermore, even in cases where there is a substantial metaphysical question at issue, it is possible that the proponents of different views argue over non-substantial features of it. Thirdly, the debate can of course be genuinely substantial and well formulated. My examples cover all of these cases. I will conclude that it is hard to give general criteria which would help us to determine whether a debate is substantial or not, as the conditions depend on the details of the issue. However, a common methodology would provide us a rigorous way to analyse each case individually. Thus, we should start by ensuring that we do have such a methodology and that there are no conflicting ancillary premises. The upshot of this chapter is the outline of a methodological tool, *truthmaker latching*, which helps us to determine when metaphysical debates are substantial.

In chapter fourteen I will discuss the requirements for a feasible methodology of metaphysics. My aim is two-fold: to point out the need to discuss methodological issues in metaphysics as well as the way this should be done and to make some suggestions as to what would be the correct methodology for metaphysics. It will be argued that this is indeed a worthwhile topic and that we can draw some basic guidelines. However, any exhaustive attempts to map the methodology of metaphysics are bound to introduce ontological commitments and it is important to recognise their role. I will point out five issues, which, as will be argued, must be addressed if a rigorous methodology is to be established. These concern the most basic laws of thought and rational inquiry, the target of metaphysical inquiry, the method of this inquiry, the degree of certainty that can be reached with this method and the modal status of any results that might be

reached. I will examine how these issues are related to the debate over realism, and briefly consider two recent contributions to the discussion, due to Kit Fine and Ted Sider.

Finally, in chapter fifteen I will assemble the main argument of the thesis. It will once again be shown how the topics that we have discussed are related and what kind of ramifications they have. The most important one of these is of course that metaphysics is a necessary discipline which precedes all rational activities. Given my discussion about the a priori and modality, among other things, I will be in the position to provide a rigorous argument for the necessity of metaphysics and will conclude the chapter with a detailed analysis of its steps.

PART I: A Historical Survey of Metaphysics

1. The Aristotelian Method and Aristotelian Metaphysics

The conception of metaphysics that I will defend in this thesis is what could be called 'Aristotelian', as opposed to 'Kantian'. It is my purpose in this chapter to clarify what it means when I say that I defend Aristotelian metaphysics. Also, many of the issues that will be discussed later can be traced back to Aristotle's metaphysics and it is thus worthwhile to examine what Aristotelian metaphysics amounts to and what is its relationship with contemporary metaphysics. The first thing that should be noted is that we are not so much dealing with the details of Aristotle's metaphysical theory – although these as well are relevant at times – but rather with the method that Aristotle used to pursue metaphysical topics. The most important aspect of the Aristotelian method is that metaphysics lies at its heart, i.e. the metaphysical considerations that Aristotle makes affect all other aspects of his philosophy. The idea that metaphysics is necessary for all other philosophical activities is indeed the key point in my conception of metaphysics as well. The upshot of Aristotelian metaphysics is that metaphysics is the first philosophy, the starting point for all our philosophical and scientific projects. In what follows we will see how the idea emerges in Aristotle's work. His key works in this regard are *Categories*, *De Interpretatione*, *Physics* and *Metaphysics*.

The way Aristotle approaches his topics is evidently very closely tied to the basic features of his metaphysics. This can be seen for example in the very beginning of his *Physics* (1984a: 184a10-184b14), where Aristotle notes that the best way to reach information about the 'science of nature' is to advance from universals to particulars, because universals are easier for us to grasp with the help of our senses.[1] Universals and

1 For discussion about Aristotle's method in *Physics* see Bolton (1991).

particulars he introduces in *De Interpretatione* (1963: 17a38). Whether or not Aristotle is right about the role of universals and particulars in our inquiries about the reality, it is clear that his account is based on prior considerations about the governing features of reality, namely the contention that our objects of inquiry include both particulars and universals. Many of these prior considerations are laid out in *Categories* (Aristotle 1963), which is the precursor of category-theory in modern ontology, discussing notions like 'substance' (2a13f), 'quantity' (4b20f) and 'relation' (6a37f). Notions like these are unavoidable in any scientific or philosophical activities[2] and it should be quite uncontentious that philosophers ought to give some kind of an account of them. The manner by which Aristotle handles them is, however, nothing like how Kant does. However, Kant's understanding of the ontological status of these kinds of notions, or categories, became the predominant one. As I will argue in more detail in the next chapter, Kant's conception of these notions as a part of *us* rather than as a part of reality continues to burden contemporary metaphysics. The problem is that when his route is taken, we are conceding the idea of an unbreakable barrier between us and reality – an idea which effectively leads to relativism. So, what we are faced with now is to consider how the Aristotelian method might be applied to the modern debate and whether the kind of realism that we see in Aristotle is able to cope with the anti-realist tendencies in metaphysics which emerged after Kant.

Aristotle starts *De Interpretatione* with an observation that might be of interest to us. In the following passage he seems to put forward a version of direct correspondence:

> [S]poken sounds are symbols of affections in the soul, and written marks symbols of spoken

2 In fact, concepts like these are usually presupposed, at least in scientific contexts.

> sounds. And just as written marks are not the same for all men, neither are spoken sounds. But what these are in the first place signs of – affections of the soul – are the same for all; and what these affections are likenesses of – actual things – are also the same. (Aristotle 1963: 16a1.)

We must not let the rather mystical sounding phrasing 'affections of the soul' confuse us. Quite simply, 'affections of the soul' are thoughts, or, if you like, propositions, whether or not they have been uttered. So, Aristotle suggests that while these propositions can be uttered in a number of ways, say in different languages, the correspondence relation from 'affections of the soul' to the actual things always holds between the same terms.[3] Direct correspondence like this surely has its problems, but I think that Aristotle's account is no less tenable than any of its modern alternatives. It is not our task here to argue for this, nor do we need to look at all the details of Aristotle's account, but we ought to keep this background in mind when we examine the Aristotelian method.

Aristotle is foremost interested in the organisation of actual things, and what he presents in *De Interpretatione* (1963) is the method by which we discuss them and some restrictions that apply, for example, to the introduction of modalities. Actual things, according to Aristotle, include particulars and universals (17a38f). In Aristotle's ontology, particulars and universals are mind-independent categories in the world, and we refer to them whenever we make affirmations such as 'every man is white' (ibid.). This would be an example of stating something universally of a universal (i.e. 'man'), as Aristotle puts it. This is, very roughly, the connection between his ontology and our language. The importance of *De Interpretatione* to us is just this: whenever Aristotle

3 However, Aristotle (1963: 16a10) notes that not every affection of the soul is true or false. Later (17a8f) he specifies that a statement-making sentence, i.e. a sentence that has a truth-value must contain a verb. Aristotle introduces some other restrictions as well, but the main line of thought is very clear: certain 'affections of the soul' have truth-values and they express propositions.

mentions a problem in the terms that he introduces in *De Interpretatione*, we know that he wants to say something about the actual things in the world. This is especially important if one wants to make any sense of his *Physics*.

As we noted above, Aristotle starts *Physics* by reminding us about the universal/particular distinction and suggests that we should approach the problems at hand from universals to particulars (contrary to what Plato suggested). It should be quite uncontentious that *Physics* is deeply involved in what we would certainly call metaphysics. For instance, one of Aristotle's initial concerns is the number of basic principles that govern different kinds of objects (1984a: 184b15 ff.). He dismisses the possibility of there being only one and concludes that there must be three of them (191a20-21). The fact that Aristotle's predecessors thought that the principal elements could include water, fire, air and earth, should not mislead us, although it might render parts of the discussion obsolete. The importance of this passage lies in the attempt to find common grounds for all (material) existence. The suggested explanations might not be correct, but they are logically sound.

So, already on the opening pages of his *Physics* Aristotle is very deeply involved with metaphysical questions of the most fundamental sort. There is an obvious explanation this metaphysical tendency in Aristotle's discussion of natural science. As Aristotle puts it in his *Metaphysics* (1984b: 1026a13f), natural science is not the first philosophy. There is something prior, an immovable substance, which has to be examined before natural science, which is concerned with movable things, can be pursued. The motive behind this is of course Aristotle's account of tracking movement into the immovable

first mover – a view that might be logically sound, but which perhaps seems problematic in the light of modern physics.

Aristotle's *Metaphysics* is especially interesting for us because in *Metaphysics* he considers a number of fundamental questions about the nature of metaphysics as a discipline: what are its tasks, method and basis. For Aristotle, metaphysics is the study of the essence of being, being as it is in itself. This is strongly contrasted with something like the Quinean idea that metaphysics should just make a complete list of what there is.[4] Rather, Aristotle is interested in what grounds the existence of different kinds of entities, why are they what they are? Furthermore, as Vasilis Politis has noted, we must be careful to correctly appreciate what kind of questions Aristotle considers to be relevant for metaphysics:

> In general, we must not confuse questions of the type, (1) 'Why are there things that are F?', with questions of the type (2) 'Why are the things that are F F?' The basic question in the *Metaphysics*, 'What is it for something, anything, to be?', is associated with questions of type 2, not type 1. (Politis 2004: 4.)

Aristotle's view is that natural science is concerned with material, moveable entities. Mathematics, on the other hand, concerns abstract objects.[5] However, neither of these disciplines is universal, as they are restricted to certain categories of being. It will then be the task of metaphysics to pursue being *qua* being, to examine what kinds of metaphysical constraints govern different kinds of entities. Aristotle proceeds to investigate what being *qua* being might involve and is convinced that the most

4 Quine's take on metaphysics will be discussed in chapter four.
5 This can of course be challenged, but it is not my concern here to discuss the nature of mathematics.

important category in this investigation is that of substance (1028a30-35). Of the possible ways of how substance relates to entities, Aristotle notes four: via essence, the related universal, genus or substratum (1028b33-35). What follows is a detailed account of these features of being. Perhaps of the greatest interest to the modern reader is Aristotle's account of essence, which is clearly the predecessor of the contemporary essentialist views: 'The essence of each thing is what it is said to be in virtue of itself' (1029b13-14). It is through the essences of things, and only them, that we can acquire further knowledge about reality. To be able to determine, for instance, how many objects there are, we must first know what the essences of the objects in question are. It is no surprise then, that essence is what Aristotle calls 'the primary being' (*ousia*) (cf. Politis 2004: ch. 7, Loux 1991). It must be noted here though that Aristotle's account, that of metaphysics as the science of essences, is itself a metaphysical answer to the question about the nature of metaphysics. He does consider other possible answers to the question as well, namely that the primary being is either the particular or the universal (and indeed, in the *Categories*, he proposed a different answer). But even if one disagrees with Aristotle about essences being at the centre of metaphysics (which I do not), his method is still very much worth attention. Furthermore, it should be made clear that there are a number of different ways to understand essences. Aristotle's conception is no doubt what could be called 'metaphysical' as opposed to 'semantic' essentialism: essences are not analytic; they are 'what is expressed by a complete account of what it is to be for a certain kind of thing' (Loux 1991: 75; see also Politis 2004: 16 ff.).

So much about the object of inquiry of the first philosophy. This quick overview hardly

does justice to Aristotle, but an exhaustive account of Aristotelian essentialism is not necessary for our purposes. We will now turn to the relationship between Aristotelian metaphysics and other disciplines, most notably natural science. Before the inquiry into the second philosophy i.e. natural science can start, we must already have done some work in metaphysics. Nevertheless, the topics discussed in *Physics* are of great importance for Aristotle and it is only because natural science is dependent on some more fundamental principles that we have to focus on metaphysics first. We certainly do not have to agree with Aristotle on the details of these principles, although it seems that much of what he contributed to the discussion about essences and universals still survives in contemporary metaphysics. In any case, Aristotle's view about the relationship between the first philosophy and special sciences goes as follows:

> There is a science which investigates being as being and the attributes which belong to this in virtue of its own nature. Now this is not the same as any of the so-called special sciences; for none of these others deals generally with being as being. They cut off a part of being and investigate the attributes of this part – this is what mathematical sciences for instance do. Now since we are seeking the first principles and the highest causes, clearly there must be some thing to which these belong in virtue of its own nature. (Aristotle 1984b: 1003a22-28.)

The above passage is perhaps even more accurate now than it was when Aristotle wrote it. Special sciences in Aristotle's time were certainly fewer and a lot closer to what Aristotle himself was doing than special sciences and philosophy are now. However, it is not that the special sciences would be entirely separate from the first philosophy; rather, they concentrate on parts of being that have been cut off from the complete list of entities. Aristotle's example is mathematics – certainly a part of the science of being, but

concerned only with a small section of it.

Once the limitations of special sciences are acknowledged, it becomes clear that even sciences like physics lack the ability to deal 'generally with being as being'. We then have the tools to effectively combine our results in metaphysics and special sciences. But how should this be done? Well, in the lines of the Aristotelian method, we should first focus on the most general principles that govern all being and proceed into the details of these principles, such as particular essences and universal attributes of different kinds of entities. After these ontological matters have been settled, we can interpret the perceptible reality accordingly, i.e. to make sense of the results that we reach in special sciences.

Note that something very important is being said about the basis of metaphysics itself here as well. The way that Aristotle approaches metaphysical topics is in the form of *aporiai*, philosophical puzzles.[6] While metaphysics is about the question 'What is being *qua* being', it is also about the very nature of this question, the possibility of metaphysics. As Politis (2004: 80) notes, it would be a mistake to think that these questions are genuinely separate in Aristotle. For if they were, this would seem to suggest that you can somehow step outside metaphysics, which is not what Aristotle thinks. The importance of this cannot be stressed excessively: Aristotle sees metaphysics as an unavoidable, primary discipline; the questions about the nature of metaphysics are metaphysical themselves and should be treated accordingly. No other discipline – physics, semantics, or even logic – can accommodate the most fundamental questions about the nature of metaphysics, for this would imply going outside the

6 See Politis 2004: ch. 3 for an extensive account on *aporiai*.

framework of metaphysics. This has numerous important ramifications, for instance, Aristotle's defence of the law of non-contradiction (henceforth LNC) respects this framework, as it is his claim that LNC is the most secure statement about how things are *in the world*.[7] In other words, it is not a statement about how we think about things or how we talk about them, that is, it is not a logical principle, but a metaphysical one. The upshot of this is that according to Aristotle, logic is grounded in metaphysics, in the ways that things are in the world. Indeed, Aristotle's line of thought suggests that the link that is often taken to exist between language or grammar, and logic, is in fact between reality and our thoughts:[8]

> Aristotle argues [in *Metaphysics* IV.4] that if [L]NC were not true of things, then we could not use thoughts and words to signify things, and in general we could not think and speak about things. He concludes that if [L]NC were not true of things, then thought and language about things would be impossible. (Politis 2004: 135.)

Metaphysics, then, is indeed the *first* science or the universal science. Yet it is worth emphasising that although metaphysics concerns all that is and is universal in this sense, it does not mean that its goal is to reach complete descriptions about all things. The universality of metaphysics is based on the fundamental nature of it, it examines being *qua* being, the preconditions of all being and the governing principles, such as LNC, which affect *all* being. It is the task of special sciences to complete the descriptions, each in their respective field – metaphysics is the study about the common features that range across all disciplines. The question at hand here concerns 'the metaphysics of metaphysics'; it is about the nature of the question 'what is being'. Only after this

7 The metaphysical status of LNC is one of the main concerns of chapter II: 11.
8 But see Bolton (1994: 350-351) for an important clarification.

question has been settled can Aristotle offer his answer to the original question of metaphysics, 'what is being'. His answer to the latter question is of course that metaphysics is the science of essences. This is the distinction between the Aristotelian method and Aristotelian metaphysics – often we are referring to the former although we talk about Aristotelian metaphysics. For my purposes this does not have very serious implications, as I happen to agree both with the Aristotelian method and with the particular answer to the question 'what is being' that Aristotelian metaphysics proposes.

What kind of a bearing does the method described above have on contemporary metaphysics? And what about the level of detail that modern physics has reached, could it not be said that all that is left to do is perhaps to establish the complete, final theory of physics, which would arguably reach the general level of being *qua* being? I think not. For one thing, it appears that a final theory of any kind is an impossibility. That is not how science – or metaphysics, for that matter – works. In fact, the whole concept of a final *theory* is contradictory. A theory is never final, as it should always be open to revision. I should not need to add that in the history of science we have seen plenty of 'final' theories which proved out not to be quite so final. Secondly, even if the best approximation of a final theory in physics were to be reached, it would in no way render metaphysics redundant. There are two reasons for this: on the one hand metaphysics is necessary for interpreting any results reached in special sciences, as some kind of categorisation of the results is needed. On the other hand, metaphysics is and must also be the starting point of any such theory, because surely a theory that claims the title 'final' must deal with being *qua* being on the most general level possible, i.e. on the level of the essences of entities rather than on the level of their observable features.[9]

9 I will discuss a number of related issues in chapters II: 5-7.

A more serious problem in any attempt to reconcile Aristotelian metaphysics with contemporary metaphysics is perhaps his idea of the immovable substance. Other details of his ontology and organisation of categories that we might not like can easily be dismissed in favour of something else, but the immovable substance seems to be Aristotle's motivation to pursue these topics in the first place and abandoning it would seem to introduce some problems. Perhaps a quick look into the reasons of why Aristotle postulates the immovable substance will help. Clearly, Aristotle is puzzled by motion and one of his basic principles is that there must be a cause for all motion: 'Everything that is in motion must be moved by something' (Aristotle 1984a:241b34). Now, this is indeed a problematic assumption and very hard to establish in terms of modern physics. Nevertheless, this assumption combined with the assumption that we cannot have an infinite line of movers, which Aristotle (1984a: 241b34 ff.) argues for at some length, produces the conclusion that there must be an immobile first mover. Perhaps this line of thought seems quite untenable now, but I do not think that we can blame Aristotle, for as far off as his line of thought appears to be, modern physics might not do much better. For consider: how does motion emerge according to modern physics?

Well, presumably, all kinds of motion can be tracked to material entities. Our current knowledge of all material entities is based on quantum particles: quarks and leptons. Motion enters the picture via forces which are manifested by certain exchange particles. There are four fundamental forces: nuclear strong force, electromagnetic force, nuclear weak force and gravity. For example, the electromagnetic force is manifested through the exchange of photons. A thorough introduction to quantum motion is not necessary

here, but quite generally, all the fundamental forces are exchange forces, as they are manifested through the exchange of one or more particles. And this of course implies motion. But wait a minute, what exactly is the *cause* of motion according to this theory? There does not seem to be a very straight-forward answer. If we were to look into the details we would find out that there are some dubious cover-ups in effect here. For instance, the exchange particles are called 'virtual', as they only exist in the exchange process, and in the case of gravity the exchange particle, called 'graviton', has not even been directly observed (and it has a rest mass of zero!).[10]

Curiously, as sophisticated and accurate as our current understanding of motion might be, it is blatantly incapable of answering the question that Aristotle asked: how does motion originate? Modern physics provides a number of interesting observations; in the case of motion originating from the electromagnetic force, the motion occurs because there are electrically charged particles present; in the case of motion originating from gravity, the cause of movement is the presence of a body of matter which attracts other bodies of matter nearby. But these are not explanations – they are descriptive accounts about our perceptible surroundings. As far as physics is concerned, there might very well be an immovable first mover which is the one common cause for all motion. What I am saying is that physics does not even attempt to answer the kind of questions that Aristotle puts forward. And this is as it should be, because natural science is, after all, only the second philosophy. There are at least two reasons why one might be unable to grasp this at first. Firstly, the Kantian tradition has made us too sceptical about the possibility of ever answering these kinds of questions. Secondly, modern science has a peculiar way to not answer the initial question, but to answer something else instead,

10 See for example C.R. Nave (2006) *Hyperphysics* for details.

making us forget what we asked in the first place – quite like a politician might! However, I think that there cannot be any doubt as to whether we should ask fundamental questions or not. Answering them is the task of metaphysics.

This offshoot to modern physics demonstrates the gap between metaphysics and the special sciences and should help us to see what motivated Aristotle towards the conclusion that metaphysics deserves a primary status. His method, based on the *aporiai*, philosophical puzzles, is revealing in this regard: special sciences do not raise general questions about being as such; instead they presuppose that there are different kinds of things ordered in a certain manner. A scientist makes inductive inferences based on perceptual evidence, but by doing so she relies on the orderly nature of reality, she assumes that by certain methods she can come up with veridical judgements about the world. But a metaphysician starts with an abstract puzzle, not an observation – a metaphysician is puzzled about how the scientist can reach knowledge in the first place, how can we know anything about being *qua* being? This is one of the key questions of metaphysics, and we have seen Aristotle's solution above – his defence of the principle of non-contradiction is especially important in this regard. So, the type of questions raised in special sciences and metaphysics are radically different. But this is not strictly a difference in their status in regard to the a priori/a posteriori distinction, as one might think. In fact, it would be a mistake to think either that metaphysics is fully in the realm of a priori knowledge or that special sciences are thoroughly a posteriori.[11] Aristotle seems to think that metaphysics and the special sciences are fundamentally linked, for metaphysics is the study of the a priori principles that special sciences presuppose. Furthermore, although metaphysics as a discipline is 'furthest from the senses' (Aristotle

11 An issue which we will return to in chapters II: 5-8.

1984b: 982a25), it is nevertheless continuous with special sciences, and could not operate exclusively in the realm of a priori knowledge.

We are now in the position to see how the Aristotelian method and Aristotelian metaphysics copes with the contemporary challenges to metaphysical realism. Aristotle's central concern is the relativist challenge to fundamental metaphysical principles, such as the law of non-contradiction. As we saw above, Aristotle thinks that LNC is indeed a metaphysical principle, not a logical principle in the sense that it would only be true of things insofar as language or thoughts are concerned. What this means is that LNC is one of the constraints that govern mind-independent reality. For Aristotle, reality is unitary, yet there are different kinds of entities with different essences in the world. LNC is perhaps the most general constraint for the organisation of these different kinds of entities. Plausibly, LNC rules out certain combinations of properties that an entity might have, for instance, no entity can be both green and red all over at the same time, or solid and liquid, or have both a negative and a positive charge at the same time. The relativist challenges this essentialist, unitary view of the reality by questioning LNC. The modern roots of the relativist challenge can be found in Kant, but Aristotle was well aware of the possibility of such a challenge (cf. Politis 2004: ch. 6).

Aristotle's defence of LNC against the relativist is, as he puts it, a 'negative' one: he demonstrates that the opponent's view is inconsistent (Aristotle 1984b: 1006a12). In fact, he goes on to show that the opponent must be committed to LNC at least in the sense that it is true of our thoughts and language (1008b3-1008b32). This is, of course, not enough as such. What needs to be added is that if LNC is true of our thoughts and

language, it is also true about the world. Furthermore, the opponent can challenge LNC by pointing out that it often appears – appears to the senses, that is – that the orderly nature of the world required by LNC is violated. To these concerns Aristotle replies as follows:

> [I]f only the sensible exists, there would be nothing if animate things were not; for there would be no faculty of sense. The view that neither the objects of sensation nor the sensations would exist is doubtless true (for they are affections of the perceiver), but that the substrata which cause the sensation should not exist even apart from sensation is impossible. For sensation is surely not the sensation of itself, but there is something beyond the sensation, which must be prior to the sensation; for that which moves is prior in nature to that which is moved, and if they are correlative terms, this is no less the case. (Aristotle 1984b: 1010b30-1011a2.)

This is a very dense passage and it is impossible to analyse it thoroughly here. But, clearly, Aristotle is here advocating a realist, causal theory of perception (cf. Politis 2004: 183). He also adds that in fact we never observe a direct violation of LNC in the senses (1010b34-1011a1). This is a crucial qualification, for Aristotle can now justifiably ask, even if the opponent denies the theory of perception that he proposed: how does the relativist explain the orderliness in the world, that is, the observed validity of LNC, which is experienced and apparently true? We must appreciate the weight of this challenge given the context in which Aristotle raises it, for he has argued at length that metaphysics, the science of being *qua* being, is first and foremost concerned with this very question. Now, if the relativist is to give any kind of a response to Aristotle's challenge, as he must do if he is to avoid being compared to plants [sic] (1006a15), then he is already involved in metaphysics. This is indeed a master argument, for Aristotle

has shown here that the only way for the relativist to be involved in a philosophical discussion of any kind is to accept the Aristotelian method and engage in metaphysics. So, regardless of what we might think about his particular answers to some metaphysical questions, the Aristotelian method certainly prevails. It is in the spirit of this method that I will put forward my argument for the necessity of metaphysics.

2. Kant and the Possibility of Metaphysics

In the previous chapter I suggested that my conception of metaphysics is Aristotelian rather than Kantian, and we saw what Aristotelian metaphysics in fact amounts to. In what follows I will examine Kantian metaphysics, and Kant's critique of metaphysics, in a similar manner. As with Aristotle, I must again emphasise that Kantian metaphysics does not necessarily have much to do with Kant's own conception of metaphysics or the details of his theory – whatever Kant's own views might have been, it is clear that he has had an enormous influence on all metaphysicians since. We will see that Kant can even be read in a manner that is not very hostile towards what I previously called Aristotelian metaphysics. It is worth keeping in mind, then, that when I refer to Kant's *negative* influence on metaphysics – as I will do throughout this thesis – my quarrel is not so much with Kant as such, but rather with certain interpretations of what his critique of metaphysics, among other things, amounts to.

One topic that Kant contributed to and which is certainly very agreeable with the Aristotelian line of thought is the nature of metaphysics as a discipline. Indeed, it is Kant's question 'How is metaphysics as a natural predisposition possible?' (B 22), which is still one of the most difficult questions for metaphysicians. Kant's answer is, of course, familiar enough: it all comes down to the possibility of a priori synthetic judgements. This route, however, although the motivation behind it is noble, is not quite satisfactory for someone who wishes to stay in the realm of realist metaphysics. For despite Kant's attempt to abandon dogmatic metaphysics, his conception of the a priori leads him to an awkward position. By this I refer to nothing else but the familiar problem of stating that

Euclidean geometry is a priori, which, by Kant's understanding of the a priori, means that it is in fact necessary. But as is well known, the theory of relativity and quantum mechanics raise a number of problems for Kant's allegedly necessary a priori truths and there seems to be 'no particularly Kantian way of dealing with this', as Penelope Maddy (2000: 102) puts it. However, this should certainly not be considered to force us to abandon Kant altogether, for it seems, as we will shortly see, that it is merely Kant's conception of the a priori which fails here. Unfortunately, this does lead to unnecessary scepticism about our ability to reach knowledge about the world *an sich*, but once it is established that it is the hopeless pursuit of necessity which leads us to this scepticism, we can see that Kant's project does have a lot to give for realist metaphysics as well.

First, let us examine what Kant's conception of metaphysics actually consists of. Already in the preface of *The Critique of Pure Reason* Kant gives an account of what metaphysics is:

> **Metaphysics** – a wholly isolated speculative cognition of reason that elevates itself entirely above all instruction from experience, and that through mere concepts (not, like mathematics, through the application of concepts to intuition), where reason thus is supposed to be its own pupil – has up to now not been so favored by fate as to have been able to enter upon the secure course of a science, even though older than all other sciences, and would remain even if all the others were swallowed up by an all-consuming barbarism. For in it reason continuously gets stuck, even when it claims *a priori* insight (as it pretends) into those laws confirmed by the commonest experience. (B xiv.)

In this passage Kant expresses his hostility towards the kind of dogmatic metaphysics that Leibniz, Wolff and Baumgarten had been involved with.[12] The problem that Kant

12 For discussion about Kant's critique of traditional metaphysicians like the ones mentioned, see

sees with the projects of these 'traditional' metaphysicians is that they can never reach 'the secure course of a science'. To make it possible for metaphysics to advance to the level of science, something has to be done. Frustrated by the utter failure of dogmatic metaphysicians to reach any kind of consensus or convincing results, Kant introduces his infamous revolution and suggests that perhaps we should give up the task of trying to reach objects with the help of a priori reasoning and rather assume that the objects must 'conform to our cognition' (B xvi). I called this revolution infamous because it seems to me that this is precisely the turning point where scepticism wins over realism, for here Kant abandons the idea that we could ever reach knowledge of the external world. But this is a too hasty conclusion.

To gain some insight into what is going on here, we should consider why Kant chose the sceptical path in the first place. I believe that two things contributed to this: the conception of the methodology of metaphysics as Kant had learned it from dogmatic metaphysicians like Leibniz and Wolff, and the over-optimistic view of the powers of a priori reasoning. The first of these is apparent in the quoted passage above: Kant conceived metaphysics as a discipline which is entirely a priori, consisting of reasoning which includes only mere concepts. Perhaps there are still some metaphysicians who would be inclined to say that this is what metaphysics is[13], but most modern metaphysicians surely admit a posteriori elements in their theories. It is exactly the hopelessness of the conceptualist approach which is behind this, and it is no wonder that Kant found it to be impossible for metaphysics to reach the status of a science when conceived like this. However, this does not explain why Kant took the path he in fact

Ameriks (1992).

13 Frank Jackson comes to mind, see chapter II: 3 for further discussion.

did, for he could just have revised his conception of metaphysics by admitting a posteriori elements in it. But for Kant there was at least one discipline which was completely a priori, but still successful: mathematics (although he does specify that mathematics proceeds by applying concepts to intuition, contrary to metaphysics). It might have been hard to imagine why metaphysics could not be wholly a priori, if mathematics was. Be that as it may, this is still not enough to explain the need for Kant to abandon all hope of reaching knowledge about the external world.

The explanation we are looking for might be found from Kant's blind trust in our a priori capabilities. It is precisely mathematics which Kant uses in his examples of the powers of a priori reasoning. I will not discuss here whether mathematics is in fact an a priori discipline or not, but for me it is very plausible that it contains at least some a priori elements. The problem, however, is not whether mathematics is a priori or not, but whether a priori reasoning is able to reach necessities. Kant puts his view as follows:

> A new light broke upon the first person who demonstrated the isosceles triangle [...]. For he found that what he had to do was not to trace what he saw in this figure, or even its mere concept, and read off, as it were, from the properties of the figure; but rather he had to produce the latter from what he himself thought into the object and presented (through construction) according to *a priori* concepts, and that in order to know something securely *a priori* he had to ascribe to the thing nothing except what followed necessarily from what he himself had put into it in accordance with its concept. (B xi-xii.)

So far so good: for Kant, a priori reasoning deals strictly with necessities. And as the dogmatic metaphysicians did not seem to reach the consensus that they obviously

should have if necessities were involved, it became apparent that something had gone wrong at a fundamental level. As Kant saw it, the only way to uphold the necessity was to turn the picture upside down and acknowledge that we just cannot reach knowledge about the objects themselves. The only certainty is that our cognition adapts to these objects in a certain way.

Of course, now we are very well aware that the Euclidean axioms concerning the isosceles triangle are by no means necessary. This leaves us two options: either we have to say that Euclidean geometry was not a priori after all, or we have to give up the necessity involved with the a priori. Thus, the path that Kant wants to take is not open any more: his transcendental idealism is not able to uphold the distinction between a posteriori and a priori knowledge (Maddy 2000: 102). This leaves matters unsettled indeed, for the necessity that Kant so much craved for comes tumbling down and we seem to be in a situation where we have to choose between pure empirical realism or genuine scepticism.

Fortunately, we do not have to take this route. There is a lot that is useful in Kant's project and it would be a pity to throw that away. I think that we can save all this, if we throw away the old fashioned conception of the a priori instead. There are in fact other reasons to do this as well, for it seems that the traditional (Cartesian) conception of the a priori is very vulnerable to objections. This is hardly surprising, as we have just seen where it leads. However, I would still be willing to defend a view of metaphysics which relies very heavily on the a priori. Perhaps not quite as heavily as Kant suggested, for we should certainly admit a posteriori elements in metaphysics, but nevertheless, it is a

priori reasoning which is at the centre of metaphysics.

How then, should we change our conception of the a priori? Well, it is clear that somehow we have to avoid the dead-end that we saw in Kant. In other words, we have to deal with the fact that Euclidean geometry is not quite as necessary as Kant thought it was. We could try to deny the apriority of Euclidean geometry altogether, but I do not really see how this could be done. For even if we concluded that in this case our psychological capacities, or something like that, failed, and produced the misconception, it would not explain the fact that in most cases Euclidean geometry is quite sufficient. It seems obvious that something was grasped, and this something was grasped without the help of empirical knowledge. Surely, it must have been a case of a priori reasoning. So, we might do better if we acknowledged that even information reached with the help of a priori reasoning is revisable. Obviously, this has some important ramifications, for it means that no discipline, be it a posteriori or a priori, not even metaphysics, can reach certainties. For some, this might be hard to accept, but I really do not see why this would be a bad thing, after all, this is something that science has to live with all the time. Indeed, I believe that here is our answer to Kant's question, i.e. how is metaphysics possible as science?. Well, metaphysics is possible as science only if its revisability and defeasibility are acknowledged.[14]

I find it slightly puzzling that a solution like this never occurred to Kant, as he starts his examination exactly by considering how metaphysics could possibly reach the secure path of science. He repeatedly uses mathematics and physics as his examples and he

14 The nature of the a priori is a recurring theme in this thesis. This serves as an initial sketch, but the main discussion will have to be postponed until chapter II: 8. Also, see Friedman (2000) for discussion about the reconciliation of modern science and the Kantian a priori.

seems to have an enormous trust in both of them, especially mathematics. But no matter how secure this path of science might seem, it has to be revisable. Perhaps we needed Einstein and quantum mechanics to realize just how many things could go wrong even in the most elaborate passages of a priori reasoning, but it seems clear that the type of necessity that Kant wanted to associate with it is forever lost.

Having said that, I must add that I find Kant's project quite fruitful for metaphysics, even though it has certainly motivated some very anti-metaphysical attitudes as well. Let me illustrate some of the positive aspects. First of all, Kant more or less cured metaphysics of the dogmatism that had prevailed for quite some time, albeit Kant himself credits Hume for this. Secondly, his attempt to solve if and how metaphysics could take the secure path of science is methodologically of utmost importance, even though he does not spend very much time with the methodological issues. This is something that modern metaphysicans' theories too often lack. Thirdly, I think that he does some very important ontological work, never mind the fact that he does it in the framework of the world as it appears to us. Different readings of Kant aside, there ought to be something for realist metaphysicians in Kant's theory. Above I have been assuming a rather harsh reading of Kant, but if the point can be made with that reading, then it can certainly be made if Kant is interpreted a bit less sceptically.

What makes Kant's theory ontologically interesting is that his categories can be taken to reflect the actual categorical structure of reality. After the revisability of the a priori has been admitted, this move is quite easy: we can do only so much with the help of the a priori before we have to turn to empirical information to verify our a priori results. But

this means that to get to the actual structure of reality, we also have to see how things appear to us empirically. So, whichever route we take here, the basic procedure of reaching any kind of rational information is always the same, i.e. testing whether our a priori results fit the empirical picture. Without much contemplation, it emerges that this is exactly how science proceeds. I do not think that Kant would deny this either, for in regard to mathematics and natural science he says the following: 'About these sciences, since they are actually given, it can appropriately be asked **how** they are possible; for that they must be possible is proved through their actuality' (B 20). In the light of this quote, it seems clear that Kant is very confident about the possibility of 'pure mathematics' and 'pure natural science', as he calls them – and these 'pure' disciplines are, as I understand, a priori in nature. But what guarantees that they are possible is that they are actual. I have no quarrel with this, as it is exactly what I suggested above. It seems, though, that metaphysics is no different in respect to this arrangement between the a priori and actuality. Indeed, the methodology is identical: we map the ontological possibilities a priori and then see which of them are actual. This implies that metaphysics and science walk hand in hand.[15]

Some support for this reading can be found from Kant's *Metaphysical Foundations of Natural Science*. In the preface, Kant suggests that:

> A rational doctrine of nature thus deserves the name of a natural science only in case the fundamental natural laws therein are cognized a priori, and are not mere laws of experience. One calls a cognition of nature of the first kind *pure*, but that of the second kind is called *applied* rational cognition. Since the word nature already carries with it the concept of laws, and the latter

15 We will return to these issues in much greater detail in chapters II:5-7 & 9.

> carries with it the concept of the *necessity* of all determinations of a thing belonging to its existence, one easily sees why natural science must derive the legitimacy of this title only from its pure part – namely, that which contains the a priori principles of all other natural explanations – and why only in virtue of this pure part is natural science to be proper science. (4: 468-469.)

Here we see quite clearly that Kant shares with Aristotle the view that natural science has a metaphysical, a priori grounding. Kant was quite inspired by the developments in science towards the end of the 18th century and in the *Metaphysical Foundations of Natural Science* he attempts to characterise some of the a priori principles that govern the study of nature, such as the infinite divisibility of matter (4: 503). Again, Kant stresses that the principles that ground the natural laws must be necessary. Strongly influenced by Newton's recent success, he considered the a priori part in science to be largely mathematical and this, for him, guaranteed the necessity of the metaphysical foundations of science. Later I will demonstrate how a perfectly feasible account of the metaphysical foundations of science can be put forward in fallibilistic terms, but we must be fair to Kant and take into account the scientific context of his time, which strongly suggested that a complete description of physical reality was just behind the corner.

Had Kant been aware of the scientific revolutions that were to follow, I suspect that he as well would have amended his views radically. This only underlines the fact that metaphysics and science are a package deal, and although I certainly sympathise with Kant's idea that there are metaphysical foundations for natural science, it seems that the relationship between these disciplines has to go both ways. But these matters will be discussed in more detail later. For now, it is sufficient to note that while Kant's pursuit

of certainty might seem to have undermined metaphysics in its most naïve form, his work as a whole does, on the contrary, offer a very ambitious, if a bit *too* ambitious view of the nature of metaphysics and its relationship with natural science. I hope to have shown, then, that Kant should not perhaps be seen so much as an adversary of metaphysical realism, but rather a metaphysical realist extraordinaire, even though misguided as he was in his requirement for absolute certainty.

3. Carnap's Anti-metaphysical Project

It is quite natural to move from Kant to Carnap, as in Carnap, at least arguably, we can see the culmination of Kant's anti-metaphysical influence. Carnap's anti-metaphysical project, which is closely connected with the Vienna Circle and the now not so popular verificationism, is perhaps the most influential anti-metaphysical project of the 20th century. The fundamental idea behind Carnap's and logical positivism's hostile attitude towards metaphysics is clear enough: only empirical, verifiable information is relevant, the rest is mumbo jumbo. Of course, Carnap's project was in fact a lot more sophisticated than this. Fortunately for us, Carnap at least explains what he means by 'metaphysics' rather explicitly:

> I will call metaphysical all those propositions which claim to represent knowledge about something which is over or beyond all experience, e.g. about the real Essence of things, about Things in themselves, the Absolute, and such like. (Carnap 1935: 461.)

Perhaps this definition fits, roughly, the kind of metaphysics that the three metaphysicians that Carnap mentions – Spinoza, Schelling and Hegel – are involved with (ibid.). As it happens, I am not too happy with metaphysics understood like this, as should be obvious from the previous chapters. However, the question that remains is whether Carnap's project causes problems for metaphysics as I understand it. Certainly, I think that a priori knowledge is crucial for metaphysics, and as it is 'beyond all experience', I would imagine that Carnap would not appreciate metaphysics in the Aristotelian sense either. This, presumably, includes talk about essences and things in themselves, although these notions would need to be clarified before any conclusions

can be drawn. It seems, anyway, that the conception of 'over or beyond all experience' in Carnap's sense is quite a lot stronger than the notion of the a priori which I associate with metaphysics.[16] To clarify this, let us look at another passage:

> The decision of the main questions about metaphysics, namely, whether it is meaningful at all and has a right to exist and, if so, whether it is a science, apparently depends entirely on what is meant by "metaphysics". (Carnap 1967: 295.)

Indeed, this is true. It is also still true that 'Nowadays, there is no unanimity whatever on this point' (ibid.), as Carnap adds a moment later. Carnap goes on to refute the view that metaphysics is a conceptual science, and, following Bergson, ends up using the name 'metaphysics' for nonrational, intuitive processes. This is of course not at all similar to how I have characterised metaphysics, but then again, my conception of metaphysics would not fit in what Carnap calls science either. It seems thus that Carnap neglects a certain route between his strict logical positivism and the utterly nonrational metaphysics. For this route, now that the name 'metaphysics' is at issue, I cannot think of a better name than 'Aristotelian', in the sense that I demonstrated in the first chapter. Incidentally, Carnap does not say too much about Aristotle, but he does stack the pre-Socratics and Plato with Spinoza, Schelling and Hegel.

Some of Carnap's arguments against metaphysics are so opinionated that I doubt that they work against any kind of metaphysics whatsoever:

> Metaphysicians cannot avoid making their propositions non-verifiable, because if they made them

16 I will return to this issue in chapter II: 8.

> verifiable, the decision about the truth or falsehood of their doctrines would depend upon experience and therefore belong to the region of empirical science. This consequence they wish to avoid, because they pretend to teach knowledge which is of a higher level than that of empirical science. Thus they are compelled to cut all connection between their propositions and experience; and precisely by this procedure they deprive them of any sense. (Carnap 1935: 462.)

I do not know which philosophers Carnap has in mind here, but I find it hard to believe that even the ones he mentions would be as dishonest as he here claims. I am sure that any self-respecting philosopher would be quite happy to welcome empirical results which would support his theory. And of course, he would have to welcome results which would falsify his theory as well. It might be true, however, that the theories of the metaphysicians which Carnap mentions are, if not impossible, at least quite hard to verify or falsify. But to claim that this is due to these philosophers being afraid that their doctrines would fall in the realm of empirical science is a bit far-fetched. Of course, this makes sense to Carnap, as he is trying to put metaphysics in with poetry and arts. Nevertheless, it is clear that this aspect of Carnap's anti-metaphysical project does not have a bearing on the kind of metaphysics that I am defending.

The originality of Carnap's project is of course elsewhere. First of all, he distinguishes a representative and an expressive function of language. The representative function of language is the function which empirical science and logic use. To put it simply, the representative function of language consists of sentences which assert a certain proposition. The expressive function of language obviously includes the representative sentences as well, for they too express something, but according to Carnap there is a vast amount of sentences which are only expressive, void of any truth value. It is easy

enough to see that poetry and other arts belong to this group, and, in Carnap's sense, metaphysics as well. His hostility towards metaphysics, though, is due to its alleged deceptive character, for metaphysics gives an illusion of knowledge: it claims to assert something when it only expresses, i.e. gives the false impression of asserting a proposition. (Carnap 1935: 465-467.)

These remarks can be contrasted with Carnap's later essay 'Empiricism, Semantics, and Ontology'. Most notably, we are interested in Carnap's linguistic frameworks. Whenever we wish to speak of a new kind of entity, he says, we must construct a new linguistic framework (Carnap 1956: 14). After the introduction of this new framework, a new set of rules, we must distinguish between questions within this framework – internal questions – and questions about the whole system of entities – external questions. The distinguishing feature of internal questions is that they can be answered with the help of empirical investigation: 'The concept of reality occurring in these internal questions is an empirical, scientific, nonmetaphysical concept' (ibid.). I will have one or two things to say about this quotation later, but for now it suffices to say that the internal questions are obviously meant to be 'scientific' questions. Whereas external questions, questions about the world itself and its reality, are questions of philosophy, or as it were, metaphysics.[17]

Carnap gives some examples of the implications of this. In regard to the world of things, namely the physical objects in the space-time world, we are able to answer all kinds of empirical questions once the appropriate linguistic framework is accepted. The process

17 It is impossible to go into the vast literature about the internal/external distinction here, but see for instance Bird (2003) and Eklund (forthcoming) for further discussion; both of them reject Quine's (1951) claim that the distinction would be a derivative of the analytic/synthetic distinction.

of acceptance may depend on factors such as 'efficiency, fruitfulness, and simplicity' (Carnap 1956: 15), but not, as you can see, on correspondence with reality. Any external questions concerning the reality of physical space and time are, according to Carnap, pseudo-questions. Questions concerning something like numbers, however, are a bit more complicated, or at least seem to be, as the ontological status of numbers is debatable. Yet, for Carnap, there is no such question as 'What is the ontological status of numbers?', for he thinks that this as well is an external question and cannot be given a formulation in scientific language (ibid.).

The picture that Carnap presents to us is fairly clear: we can only operate within the framework of empirical science (and logical analysis), any questions external to that framework are pseudo-questions. Thus, the introduction of a new linguistic framework does not require answering any ontological questions about the entities that it concerns. This is because Carnap thinks that the introduction of a new framework does not make any assertions about reality. From all this, Carnap draws his well known conclusion: we should be tolerant in regard to different linguistic frameworks. It is easy to agree with this point, but to claim that these different frameworks do not make any assertions about reality is strange indeed, for this is not how people use them.

Furthermore, we should take a closer look at Carnap's notion of reality: the empirical, scientific, nonmetaphysical reality. What kind of reality is this? Carnap is quite happy to accept that empirical science is involved with reality in some sense – at least we can say that unicorns are not real. And the questions involved with empirical science are presumably internal questions. However, it would be peculiar if, say, physicists would

agree with Carnap's claim that the questions about the reality of physical space and physical time are pseudo-questions. Surely, in a very clear sense, scientists think that the subject-matter of their discipline is reality and that they make substantial assertions about the nature of this reality. As Carnap puts it, if these questions are taken to be internal, then they are 'analytic and trivial', any other understanding of these questions renders them, at best, pragmatic (Carnap 1956: 17). But how could this be all that there is to it?

When we ask whether something is real or not, we just want to know if such and such an entity exists. When physicists introduce a certain new particle, existence of which seems to be supported by, say, indirect empirical evidence, but has nonetheless never been seen, we want to ask: is this particle real or not? It is hard to see how this could be an internal question, but it surely is not a pseudo-question either, as some day we might be able to verify or falsify the reality of that very particle. And the same applies to most of the questions that Carnap claims to be external, perhaps with the exception of questions about abstract objects such as numbers and their reality. The problem is that Carnap applies the same idea to questions about abstract and concrete objects, while these are two different questions.

It seems to me that Carnap is having a free lunch here. He denies all talk about ontological questions, but he happily takes empirical science for granted. This might be the attitude of a naïve non-philosopher, but a philosopher should certainly see that there are serious ontological questions to be settled before we can welcome empirical science with open arms. Indeed, why else would there have been a two thousand year project to

find metaphysical foundations for science?

Of course, Carnap is not ignorant about this kind of discussion and he does have something more to say. Carnap talks about 'empirical reality', which concerns, unsurprisingly, physical objects (Carnap 1967: 273 ff.). This notion of reality is supposed to be able to separate real physical objects from nonreality such as dreams or inventions. However, he does acknowledge that reality is not exhausted with physical objects: there are also what he calls psychological objects and cultural objects, which also involve real and nonreal objects. We are not interested in the details of these, but be it noted that Carnap is in some trouble when trying to determine which objects are real and which are not, as he tries to ground it all in linguistic usage and convention, which, of course, makes it arbitrary, as Carnap notes himself (Carnap 1967: 280). One of Carnap's examples of problematic cases concerning physical objects is the collective consisting of 'the present vegetation of central Europe' (Carnap 1967: 278). Quite clearly, any inquiry into the reality of an object like this will be very problematic if all we have to rely on is linguistic usage.

Let us now proceed to 'The metaphysical problem of reality' and see what Carnap has to say about it (Carnap 1967: 281 ff.). Carnap understands 'metaphysical reality' as follows: something is real in the metaphysical sense if it exists independently of consciousness. Three philosophical schools emerge from the different ways that one might approach this question, namely realism, idealism and phenomenalism. Carnap goes on to examine whether any of these views is compatible with his conception of empirical reality, his hypothesis being that all of them belong to a nonrational discipline

which he calls metaphysics. However, he does admit that initially it seems that his empirically real objects would have to be called independent of consciousness as they do not depend on one's will. But Carnap refutes this line of thought on the basis that if one holds a physical body in one's hand, it *does* change if an appropriate act of will is carried out. This apparently means something like dropping the object or throwing it against a wall. Well, this is of course correct, but clearly this counter-example does not quite grasp the notion of 'independent of consciousness', for the change that occurs when a physical object is, say, dropped and smashed, occurs because there are certain other real physical objects present which cause this to happen, namely the hand that drops the object and the ground that it hits. So, what would be needed to refute this account is an act of will which causes a change without taking advantage of other physical objects, not even the hand which is holding the original object. Granted, this causes some further problems as it is presumably an act of will which moves the hand and so on, but that is exactly the point: we end up in a highly detailed discussion about the metaphysical notion of reality and what it involves. No doubt this discussion would take us deep into the philosophy of mind as well.

An important point that Carnap makes is that none of the three schools – realism, idealism or phenomenalism – are in contradiction with what he calls 'construction theory', i.e. empirical reality. However, I do not quite see how this is supposed to support Carnap's view, as the account of empirical reality that he puts forward is exactly what these different schools are trying to explain. In other words, empirical reality is more or less the starting point, and if the different schools would be in contradiction with that, then they would surely fail. Of course, these different schools do contradict

each other and Carnap notes this as well. He thinks that there is nothing epistemological in these accounts: they are purely in the realm of metaphysics (Carnap 1967: 286). In fact, this is something that I almost agree with, as I find, for a number of reasons, that epistemology is too often done without acknowledging the metaphysical commitments in the background. But of course I do not agree with the claim that metaphysics is nonrational. Consider what Carnap allows in the realm of epistemology:

> [U]ltimately, all knowledge goes back to experiences, which are related to one another, connected, and synthesized; thus, there is a logical progress which leads, first, to the various entities of my consciousness, then to the physical objects, furthermore, with the aid of the latter, to the phenomena of consciousness of other subjects, i.e., to the heteropsychological, and through the mediation of the heteropsychological, to the cultural objects. *But this is the theory of knowledge in its entirety.* (Carnap 1967: 286, italics his.)

This sounds very suspicious, and my suspicions grow exponentially when Carnap admits that there might seem to be realism at the bottom of the practical procedures of the empirical sciences (ibid.). In his defence, Carnap says that we must be careful to distinguish linguistic usage and actual asserting, as it is the first kind of realism which is involved with physics and such. This is hardly convincing; see again the passage quoted above. Does it not seem that there is quite a leap between 'various entities of my consciousness' and 'physical objects'? It should, as this is exactly the leap that is usually questioned by opponents of realism. And this, indeed, is the ontological free lunch that I think Carnap is trying to have: getting the good things of realism without making any commitments to the metaphysical background. Realism can hardly be grounded in linguistic usage and convention. Furthermore, Carnap insists that metaphysics is a

nonrational discipline and that the dispute between realism, idealism and phenomenalism thus cannot be solved by rational means, but it seems to me that Carnap himself is trying to give rational arguments for realism, although, sadly, grounding them in linguistic usage and making the case quite a bit less convincing. Thus, whether he wants it or not, Carnap is neck-deep in metaphysics – the Aristotelian sort.

4. Quine's Conception of Metaphysics

It is sometimes suggested that Quine made metaphysics fashionable again after the long period of unpopularity that it had suffered, culminating in Carnap and the Vienna Circle. I suppose that this is true at least in the sense that Quine pointed out some important shortcomings in Carnap's views and re-introduced some age-old metaphysical topics. However, although Quine does talk about matters metaphysical, his attitude towards the discipline is not that much more positive than that of his colleagues who still lingered after the verificationist dream. Moreover, as we saw in the last chapter, Carnap's views were not really aimed against the sort of metaphysics that I wish to defend. In what follows I will look at Quine's conception of metaphysics especially in regard to his two well-known papers, 'On What There Is' (1948) and 'Ontological Relativity' (1969). Here I aim only to put forward a very general overview of Quine's conception of metaphysics, but many of the themes introduced here will be discussed in much greater detail later on, especially in regard to Hilary Putnam's work. A second topic that I will consider briefly is Quine's view about the relationship between philosophy and science, which, again, is a topic that will receive considerable attention in Part II.

It might be helpful to start by examining the link between Carnap and Quine, as much of what Quine wrote is more or less in direct response to Carnap. The idea of linguistic frameworks[18], which we have already discussed, is not appealing to Quine. He contrasts Carnap's understanding of ontological commitment with his own: Quine thinks that the question about the ontological commitments of a theory is the question of what there is according to that theory, i.e. to what entities does the theory commit itself (Quine 1951:

18 Carnap talks about them in his paper 'Empiricism, Semantics, and Ontology' (1956).

204). The follow-up to this is the question: how does a theory actually commit itself to certain entities? Not by the use of names, according to Quine, but through discourse and variables of quantification:

> Thus I consider that the essential commitment to entities of any sort comes through the variables of quantification and not through the use of alleged names. The entities to which a discourse commits us are the entities over which our variables of quantification have to range in order that the statements affirmed in that discourse be true. (Quine 1951: 205.)

Quine summarised the view by coining the well known phrase 'to be is to be the value of a variable' and we will take a closer look at the idea shortly, but first we should consider why Quine does not appreciate Carnap's linguistic frameworks.

The idea with Carnap's frameworks, as we saw, is to separate internal and external questions. To put it shortly, internal questions are questions of science, questions about the existence of certain entities within the framework of science, whereas external questions are in the realm of metaphysics, questions about the whole set of entities and not just the ones within a certain framework. This is, as Quine notes, not a question about what a given theory presupposes, but a question about what entities there really are (Quine 1951: 206). Quine tries to examine this distinction in his own terms and introduces a new distinction between category questions – questions that can be raised before the adoption of a given language – and subclass questions, which are internal. What Quine calls category questions are external, but internal questions also include category questions 'when they have trivially analytic or contradictory answers' (Quine 1951: 207). Quine's worry here is that a distinction like this is rather trivial, because we

can throw the questions from one side to another just by using different styles of variables for different ranges. I will not go into the details of this, because it seems to me that Quine is completely missing Carnap's point here.[19] Of course, Quine does acknowledge that Carnap does not have a trivial distinction in mind. The problem here is that Quine tries to analyse this distinction in the terms of his variable-centred ontology, while Carnap is clearly looking for a distinction which cannot be described in these terms.

Quine wraps up his case against Carnap by recommending him to abandon the distinction between internal and external questions. Interestingly, Quine draws an analogy between the distinction at hand and the analytic/synthetic distinction and suggests that

> [I]f there is no proper distinction between analytic and synthetic, then no basis at all remains for the contrast which Carnap urges between ontological statements and empirical statements of existence. (Quine 1951: 211.)

Quine, having argued that the analytic/synthetic distinction *does* fail, thus concludes that ontology, and even mathematics and logic, are continuous with natural science, the differences between these disciplines being only in degree and not in kind. Here we see the roots of Quine's conception about the relationship between science and philosophy, which he elaborates, for instance, in his 'Posits and Reality' (1955). We will discuss this relationship in more detail shortly.

19 To this extent I agree with both Bird (2003) and Eklund (forthcoming).

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I turn now to a central concern over Quine's view of metaphysics: the nature of existence and our commitment to it. 'On What There Is' is of course the crucial text here, but the basis of Quine's view was already established in his 'A Logistical Approach to the Ontological Problem' (1939). A brief reminder of the well-known discussion over nonbeing between Quine and his imaginary opponents, McX and Wyman, is in order. McX's account is that Pegasus is an idea, Wyman's account suggests that Pegasus is an unactualised possibility and he basically reduces existence to actuality, but grants Pegasus its subsistence nevertheless. Quine suggests that Russell's singular descriptions might be of some use in trying to settle the debate (1948: 6 ff.). The idea is that we can paraphrase problematic cases so that 'the burden of objective reference' is taken over by bound variables and thus we can get rid of the commitment to existence in cases like Pegasus (a name which has to be translated into a descriptive phrase before Russell's move can be made). So, Quine concludes, we do not commit ourselves to the existence of Pegasus when we say that it is not.

Quine suggests that what caused McX and Wyman to err here is a confusion about meaning and naming, i.e. not quite grasping the Fregean story about the Evening Star and the Morning Star and them having a different meaning although they name the same object (Quine 1948: 7). It seems to me, however, that there is a more serious confusion at hand here. This is what Putnam showed us some 25 years after Quine's 'On What There Is': meanings just ain't in the head. Quine actually suggests that meanings could plausibly be explained as ideas in the mind, although he does not commit himself to this (ibid.). And while we are on the topic of commitment, let us see again how Quine's story goes:

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> We commit ourselves to an ontology containing numbers when we say there are prime numbers larger than a million; we commit ourselves to an ontology containing centaurs when we say there are centaurs; and we commit ourselves to an ontology containing Pegasus when we say Pegasus is. But we do not commit ourselves to an ontology containing Pegasus or the author of *Waverley* or the round square cupola on Berkeley College when we say that Pegasus or the author of *Waverley* or the cupola in question is *not*. (Quine 1948: 7.)

So, Quine wants to separate meanings from entities and to get rid of the problem of nonbeing in the process. I will discuss these issues in much greater detail later[20], but a few things should be noted here. Firstly, Quine's understanding of ontological commitment is very strange. As others (see for instance Dilman 1984: 4-5) have noted, the question of whether Pegasus – that very entity – exists, has little to do with the fact that we can utter 'Pegasus exists'. Moreover, our talk is always guided by its context, that is, if we are telling a story about Pegasus to a child, why would we think that anything we utter about Pegasus would commit us to anything ontologically significant? It is because of problems like this that it is very hard to see what Quine actually means when he talks about ontology and specifically ontological commitment. What is even more puzzling is how Quine could possibly combine this very loose way of fixing ontological commitments with the rigorous naturalism that he proposes in other connections. What I mean is: if ontology and science are continuous, and further, science is *primary*, should we not judge ontological commitment in terms of the *scientific* claims that are being made? In the case of fictional entities like Pegasus the scientific story is quite straight-forward: fictional entities do not exist in the sense required by science, no matter how much we might talk about them outside scientific contexts.

20 Especially in chapter II: 12.

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From meanings, Quine jumps to a rather different subject: universals (1948: 8 ff.). He is of course sceptical about such things as universals, but again he suggests some very strange things. According to Quine it is obvious and trivial for McX that there are universals, but he claims further that it is characteristic of the proponents of metaphysics that they regard all true statements of metaphysics as trivially true:

> Ontological statements follow immediately from all manner of casual statements of commonplace fact, just as – from the point of view, anyway, of McX's conceptual scheme – 'There is an attribute' follows from 'there are red houses, red roses, red sunsets'. (Quine 1948: 8.)

This seems like a rather catastrophic misunderstanding of how ontological theories emerge. Surely it is not a question of some trivial grasping, something that follows from a conceptual scheme without any need for further justification, as Quine suggests. Something like this would seem to imply what Quine came to suggest later: the relativity of ontology. However, the explanation for Quine's harsh understanding of ontological theories lies ahead:

> Now how are we to adjudicate among rival ontologies? Certainly the answer is not provided by the semantical formula 'To be is to be the value of a variable'; this formula serves rather, conversely, in testing the conformity of a given remark or doctrine to a prior ontological standard. We look to bound variables in connection with ontology not in order to know what there is, but in order to know what a given remark or doctrine, ours or someone else's *says* there is; and this much is quite properly a problem involving language. But what there is is another question. (Quine 1948: 10.)

This explains a lot indeed, for some of Quine's remarks seem to suggest that he has completely missed the point of ontological investigation in the first place; and this is

exactly to try to find out what there is, not to find out what some theories claim there to be.[21] Of course, we could have some doubts about whether Quine is right even about the case of finding out what a given doctrine says there is, but I will leave that aside to get into the bottom of the more substantial case. Quine thinks that we might have reasons to stay on the 'semantical plane' in this case as well, but these reasons are mostly practical: we need to first find some 'common ground on which to argue' (ibid.).

Quine hopes that on the 'semantical plane' we could still talk about the same things although we have fundamental disagreements in our conceptual schemes. This might grasp something relevant about ontological debates, as it turns out that we often are able to discuss metaphysical topics even though the conception of metaphysics differs fundamentally between the opponents. However, I do not see why this would make it necessary to reduce discussion about ontology to discussion about language. I do admit that some work would have to be done to clarify the language of metaphysics and there is certainly work to be done in the methodology of metaphysics, but these are not merely semantic matters.[22]

Fortunately, Quine does admit that the question of what there is does not quite reduce to linguistics. Instead he puts it to us that our acceptance of an ontology is similar to our acceptance of a scientific theory (Quine 1948: 10). This is something that I find very appealing initially, but Quine quickly adds something that makes me refuse the idea: according to him this means that we adopt the simplest *conceptual* scheme into which

21 Of course, this is, by no means, *all* that ontological investigation amounts to: the more interesting question is how the different kinds of things that exist are organised, that is, what is the categorical structure of reality.

22 This is exactly what I propose to clarify in the course of this thesis, chapter II: 13 is especially relevant in this regard.

we can fit our empirical experiences. Now, to me, this sounds very much as if he was after all trying to tell us a linguistic story, despite his promises:

> To whatever extent the adoption of any system of scientific theory may be said to be a matter of language, the same – but no more – may be said of the adoption of an ontology. (Quine 1948: 11).

This sounds just fine to me, but the implication is that I disagree very strongly with Quine's conception of science [sic]. Surely, it is not a matter of language which scientific theory we adopt, the issue is how well it corresponds with reality. Quine appeals to simplicity, and of course he is right: we do prefer simpler conceptual schemes, but this is hardly relevant for the *correctness* of a theory. If a scientist makes his choices on linguistic grounds, he is not a very good scientist. It seems then that this idea turns against Quine.

It is not surprising, given that Quine reduces both ontology and science to conceptual schemes[23], that he later put forward the idea of the relativity of ontology; indeed, it seems to me that this is the logical consequence of what we saw in 'On What There Is'. Some hints of what was to follow are present in Quine's 'Ontological Reduction and the World of Numbers' (1964), where he plays with the idea of reducing ontology to numbers and sets. But it is of course his 'Ontological Relativity' which is the most interesting paper for us. Quine's examples of the inscrutability of reference and indeterminacy of translation are quite familiar, and given the connection between ontology and linguistics that we saw Quine to suggest above, the path from, as it were, the relativity of language to the relativity of ontology is somewhat straight-forward.

23 Which, incidentally, bear remarkable similarity to Carnap's linguistic frameworks, which Quine supposedly abandoned.

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Quine's resolution to the problems introduced by the inscrutability of reference rests on an idea about a background language: it is not meaningful to ask whether our terms or concepts refer to something 'absolutely', we can ask questions like 'Does 'rabbit' really refer to rabbits?' only relative to some background language which defines one or other sense of 'rabbits' (Quine 1969: 53). But it is not just the need for a background language which is at issue here, for Quine suggests that similarly:

> What makes sense is to say not what the objects of a theory are, absolutely speaking, but how one theory of objects is interpretable in or reinterpretable in another. (Ibid.).

Thus, we do not only need a background language, but a background theory as well. One implication of this, according to Quine, is that we cannot require theories to be 'fully interpreted'; theories are always interpreted relative to an overall home theory. Quine has some worries that this will be understood as making universal predication meaningless (or perhaps the other way around: the meaninglessness of universal predication implies the relativity), but this is not what he thinks (Quine 1969: 54-55). The real cause for the meaninglessness of ontological questions is supposed to be circularity. For some reason, Quine does not give too many arguments for this. In fact, his case is the following: a question like 'What is an *F*?' can only be answered by introducing another term: 'An *F* is a *G*.', and this is meaningful only relative to the 'uncritical acceptance of "*G*"' (Quine 1969: 55).

In a trivial sense, Quine is right. When we answer questions like 'What is an F?', we indeed do it by recourse to some other terms. In this sense, our theories are relative to background theories and perhaps to some kind of a home theory. But does this imply

that ontological questions are meaningless? Well, I suppose that we could avoid this result by parting ways with Quine to start with, as I already suggested when we considered his conceptual schemes and the trouble that they caused. However, even if we went a bit further with Quine, I believe that we could still save ontology proper. For it seems to me that all that Quine has showed with the need for a background theory is that we indeed need to stop the regress at some point and take something for granted. This would point out to the home theory, to which everything else falls back. The home theory, then, would have to be a theory about the most fundamental ontological preconditions, which are *not relative to anything else*. It is naturally arguable what these preconditions are, but we would at least have to agree that there are some, as otherwise we would have to take Quine's project to its logical end, which cannot be anything else than utter scepticism and anti-realism. It might be tempting for Quine and others who prefer desert landscapes to try to get the good things of the realist's ontology without committing to one, but this kind of an attempt is doomed to failure. Fortunately, we can quite coherently enjoy the benefits of realism before this 'home theory' is fully characterised, as it merely requires adopting the fallibilism of the scientific method. As I will argue at length later[24], this method is very much committed to the idea of a fundamental ontological structure in the background, a 'home theory' of sorts. The irony in Quine's approach is precisely that he has a very deep trust in science, but at the same time he is digging the ground under it.

To be fair, despite Quine's remarks about the relativity of ontology, he seems to be quite happy to discuss ontological matters – after all, he continued to publish material which all but ignores his previous results after 'Ontological Relativity', as Koskinen (2004:

24 Chapters II: 5-7

245) has also noted. Moreover, Quine seems to fall into the Aristotelian trap noted in the opening chapter: he defends the relativistic framework from metaphysical grounds and thus is already involved in a metaphysical discussion. Because of this and other reasons[25], we could very well say that Quine is a metaphysician in a very fundamental sense of the word.

To conclude, I wish to briefly consider Quine's conception of philosophy more generally, and especially his views about the relationship between science and philosophy. As an idea, the continuity of science and philosophy is very appealing to me – I hesitate to use the word 'naturalism', but, if this word is correctly understood, the conception of metaphysics that I will put forward in this thesis is very naturalistic indeed: I consider natural science to have metaphysical foundations, to which it is completely reducible. But Quine would not like the sound of this, for he expresses the continuity between science and philosophy quite differently:

> The scientific system, ontology and all, is a conceptual bridge of our own making, linking sensory stimulation to sensory stimulation. [...] But I also expressed [...] my unswerving belief in external things – people, nerve endings, sticks, stones. This I reaffirm. I believe also, if less firmly, in atoms and electrons and in classes. Now how is all this robust realism to be reconciled with the barren scene that I have just been depicting? The answer is naturalism: the recognition that it is within science itself, and not in some prior philosophy, that reality is to be identified and described. (Quine 1981.)

Naturalism, in Quine's terms, is science through and through. Science, then, is a conceptual tool for organising sensory stimulations. But how does one defend a 'robust

25 Koskinen (2004) has made a book-length case for this.

realism' with the help of a conceptual tool? Any conceptual mapping from one sensory stimulation to another is not going to say anything about its reality – its existence conditions. Yet Quine insists on believing in external things. Presumably this means that he believes that peoples and stones *exist*. Given his previous remarks about ontological commitment, all that Quine means by *exists* is that he *talks* about these entities. But this, as I argued, is a very strange way to think about existence. Certainly, this is not a *scientific* way to think about existence, for it implies that winged horses and centaurs exist. What seems to be amiss here is that Quine is unwilling to acknowledge the full-blown realism that is required to separate existence proper from a very confused pseudo-existence. Implicitly, of course, he is very much committed to the realist framework, as is natural science, and indeed helped to advance the research for the metaphysical foundations of natural science. There is much more to say about all this, but the theme is recurring in Part II and perhaps I have said enough for now. It seems, in any case, that Quine as well is on the same metaphysical boat.

5. Beyond Quine

I have now discussed the views of certain philosophers who have undeniably been some of the most influential in terms of amending our conception of metaphysics. I could have discussed a number of other, arguably at least as influential philosophers as Aristotle, Kant, Carnap and Quine. But a survey of the history of philosophy, or metaphysics, is not all I wish to do here, for I have something to contribute to the discussion myself. In Part II we will return to many of the issues that have previously been mentioned in passing. The purpose so far has been to examine the baggage that we bring to the discussion when we introduce any of these topics, and there is a lot of it. Nevertheless, I hope that in most cases the original problem is clear enough and I will certainly attempt to address *that* problem, and not merely repeat what the great dead philosophers have said.

In the Introduction I already summarised what I am going to say in Part II, but a brief recap might be in order. The first four chapters are concerned with contemporary views in metaphysics, such as Hilary Putnam's, Michael Dummett's, Nelson Goodman's, Frank Jackson's and Eli Hirsch's. My approach will be slightly different from Part I, as I will be actively criticising all of these philosophers. Again, a number of philosophers, especially those with whom I have more sympathy, such as David Lewis and David Armstrong, will be largely omitted. In later chapters I will return to the views of these and other philosophers in regard to the specific issues that I will discuss. From chapter five onwards the focus will be on particular issues rather than the views of individual philosophers. All of these have already been discussed, if only very briefly.

5. Beyond Quine

Before I launch into the next part, it might be helpful to consider where Quine and the route to him has left us. Most importantly, the seed of scepticism that Kant planted seems to prevail. With Carnap and the Vienna Circle it reached its full potential, but the same hostility towards metaphysical realism is still very much present in Quine – and equally in Putnam, as we will shortly see. This is an issue that we will have to tackle constantly and I will devote plenty of time – more than I would like to – to address it. Another theme which I will discuss at some length is the relationship between philosophy and science. Aristotle talked about it, Kant most certainly did, and by Carnap and Quine philosophy had almost been swallowed by science. Strangely, the major challenge for metaphysics according to Carnap (and Quine) is that it lacks the rigour and certainty of science. Quine further suggested that philosophy is really a part of science. This is of course very peculiar by Aristotelian lights: for one thing, it was never even suggested that metaphysics would *not* be continuous with science, it almost goes without saying that it must be. But it should be equally clear that any sort of a grounding relation can only go one way here, that is, we should rather be looking for metaphysical foundations of natural science. Kant, as we saw, acknowledged this picture, but sadly his project is usually twisted by a very sceptical reading. In Part II, as I have repeatedly mentioned, I will discuss the nature of the relationship between metaphysics and science and suggest that the Aristotelian story is indeed the most plausible one.

It will be useful to keep the roots of these issues in mind when we launch into the contemporary discussion. All too often the real issue at hand is forgotten and clouded by technical jargon. It is not an entirely unfamiliar sight that the core issues, such as the question over realism, are dubbed as 'metaphilosophy' and thus unimportant – perhaps

suitable to pursue after one retires. But 'metaphilosophy', should be the very first of our concerns. How are we supposed to reach any agreement if we are not in agreement on what it is that we are trying reach agreement on! Although I will discuss a number of specific technical issues in Part II, I will attempt to do it in the framework of this more general problem. Indeed, it is my purpose to show that in all of the seemingly different areas of philosophy we are operating within the very same framework – the one that I call 'metaphysical' in the Aristotelian spirit. So, now that the history and purpose of this project have been examined, it is time to pursue the nature of metaphysics.

PART II: The Nature of Metaphysics

1. Putnam's Critique of Metaphysical Realism

Hilary Putnam is a philosopher who has contributed much to metaphysics, but he has also endorsed views which metaphysical realists do not find very appealing. His influence on contemporary metaphysics, in any case, is undeniable, so it is appropriate to start the pursuit of the real nature of metaphysics with Putnam. Needless to say, we will return to him repeatedly during the course of this thesis. Before we start, something must be noted about Putnam: as is well known, it is particularly hard to pinpoint what exactly are his views at any given time. It is often said that he is more interested in getting the story right than defending his previous views. Be that as it may, it should be noted that when I talk about Putnam, I usually talk about the Putnam of a certain period. In fact, one should not think that I am talking about Putnam's views specifically, but rather about views that Putnam once put forward and which even now enjoy wide support from a number of his followers, although not necessarily from Putnam himself.

In what follows I will examine some of Putnam's views about the possibility of metaphysical realism. The paper that I will focus on here, 'Why there isn't a ready-made world' (1981) represents Putnam's 'sceptical' period, roughly from 1975 to 1994 (cf. Norris 2002), during which he questioned his earlier views on scientific realism and put forward the view known as 'internal realism'.[26] During this period Putnam was particularly hostile towards metaphysical realism. The way he understood metaphysical realism at the time should be clear from the following quote:

> What the metaphysical realist holds is that we can think and talk about things as they are,

26 We will take a look at the post-1994 Putnam in the next chapter.

> independently of our minds, and that we can do this by virtue of a 'correspondence' relation between the terms in our language and some sorts of mind-independent entities. (Putnam 1981: 205.)

I should point out that I am not quite happy with this definition of metaphysical realism, but it is not my concern at the moment to put forward a better one, we should merely see where Putnam takes us. This definition leaves it open what the 'correspondence' relation between the language and the world is. Putnam immediately abandons the Moore-Russell view that sense data are the mind-independent entities in the world required by metaphysical realism and instead focuses on the view that these mind-independent entities are material objects and the 'correspondence' relation is some sort of a causal relation between our language and these entities (ibid.). What he then suggests, to put it shortly, is that metaphysical realism is incompatible with the denial of essences, and this is why some materialists (as it is materialists who support what Putnam calls metaphysical realism) have revived the talk of essences. What Putnam then argues is that the kind of metaphysical realism that mixes materialism and essentialism is not consistent (Putnam 1981: 207). We could certainly say a few things about this initial construction as there is arguably quite a bit that not all metaphysical realists would be content with (indeed, Putnam constructs something like a straw man here), but let us humour Putnam and follow his argumentation for now.

First of all, Putnam tries to motivate his case of focusing on materialism. He thinks that materialism and scientism somehow reflect our 'desire' for speculative metaphysics. For one thing, this can supposedly be seen in the blind trust in science or physics, which serves as the closest thing to a single true ontological theory. Another important aspect

of this interpretation is that metaphysics understood like this can be considered as open ended, a revisable discipline. Putnam correctly acknowledges the appeal of this sort of view, but he is very worried about this being just a contemporary form of scientism, which has replaced positivism and pragmatism. (Putnam 1981: 210-211.)

Putnam has indeed grasped something relevant here, as it seems to me that the sort of natural metaphysics which preserves the fallibility of science is the only kind of metaphysics that we can have. Of course, Putnam thinks that we cannot have even this very restricted form of speculative metaphysics. What we need to consider now is how and why does Putnam refute this view that initially sounds so promising. His hatred towards scientism seems to be an important factor here. I can certainly sympathise with this if scientism is understood in the sense that it is often associated with Quine, but Putnam does not seem to have this in mind. We have to go into little more detail to get to the bottom of this.

What Putnam considers to be crucial for metaphysical realists is that the coherence of their theory requires a so called 'ready-made' world (Putnam 1981: 211). The idea behind this is that there has to be a certain structure in the world with which our language can correspond. This is required for the very intelligibility of the idea of correspondence. Putnam then suggests that many materialist metaphysicians take causal relations to be an example of this structure, but he also raises a question: is causation a physical relation at all, i.e. is it compatible with materialism (ibid.)? He constructs quite an original case to show that, in either case, causation does not do the trick that materialists hope. According to Putnam, we are often simply relying on our intuitive

notion of explanation when we say that something *caused* something; this might be a part of the total cause, but we can hardly ever list all the parts in the total cause and could thus never use it properly, or so the argument goes (Putnam 1981: 213).

The idea behind Putnam's criticism is, of course, not all that original after all. He simply puts Kant's ideas in modern clothes:

> [S]alience and relevance are attributes of thought and reasoning, not of nature. To project them into the realist's 'real world', into what Kant called *noumenal* world, is to mix objective idealism (or, perhaps, medieval Aristoteleanism) and materialism in a totally incoherent way. (Putnam 1981: 215.)

In spirit, Putnam's account seems to be little more than neo-Kantianism. However, he does raise some important questions, which might indeed be problematic for the metaphysical materialist that he opposes. But I am not quite convinced that we have to follow the path that Putnam lays ahead of us if we want to be metaphysical realists. The only thing that we really need is the so called 'ready-made' world. We can certainly agree about salience and relevance being in the mind rather than in the 'real world', I guess that this could be said even about causality as it is some times defined. But it is the single, coherent structure of the world that metaphysical realists need, and this is something that Putnam has not yet motivated us to abandon. In fact, his case is based on the critique of causality, which is supposed to be a proof of the needed structure. I will not go into the details of causation here, although I do believe that we might be able to explain it properly in regard to a single coherent structure of reality. But causation is certainly not the only example of a 'built-in' structure in the world. In later chapters I will argue that the only way to explain the success of science is to acknowledge a

structure like this. However, it should also be noted that there is nothing here that necessarily commits us to materialism, at least not in the way Putnam uses the word. As far as we know, there might be nothing materialistic about the fundamental structure of reality, but its structure certainly imposes certain conditions, laws if you like, for the entities that it consists of. Thus, it seems to me that the problems that Putnam raises with his critique of causation are not as serious a threat to metaphysical realists as he suggests.

It might be that Putnam's comments on essentialism are more threatening. According to him, metaphysical realists need essences because denying them would be denying intrinsic properties, which in turn would threaten the correspondence between our thoughts and things. The upshot is that we would not be able to pick out any single correspondence relation between our language and the world: 'reference becomes an "occult" phenomenon', as Putnam (1981: 207) puts it. I think that we could once again argue that metaphysical realism does not necessarily have to take this route to start with, but as my sympathies lie with essentialism and there indeed seems to be a connection with essentialism and metaphysical realism, we probably ought to see where Putnam goes with this.

He starts by applying Kripke to the classic case of the statue and the piece of clay that the statue was made of, the moral being of course that these are two distinct objects with different essential properties (Putnam 1981: 218 ff.). Kripke's ideas of the matter are of course quite widely accepted and Putnam does not disagree with him here. His question, instead, is whether the Kripke-type essentialism can be of any help to materialism. In

fact, the question is a bit misleading, as the problem that Putnam here raises is really about whether essences are 'in the world' or just linguistic conventions:

> No one doubts that the *concept* 'that statue' is a different *concept* from the *concept* 'that piece of clay'; the question is whether there is some *individual* in the actual world to which one of these concepts *essentially* applies while the other only accidentally applies. (Putnam 1981: 220.)

This conceptual sense of essentialism is the type of essentialism that Putnam himself can be said to support, as he acknowledges to have done in his 'The Meaning of "Meaning"' (ibid.). Yet he concludes that neither his nor Kripke's version of essentialism is of any help to the materialist. Putnam puts this rather strangely though, suggesting that a 'metaphysical reading' of his or Kripke's essentialism is 'realist enough', but the realism in question is not of a materialist sort (Putnam 1981: 221). This strikes me as a too easy escape. How, exactly, are these versions of essentialism 'realist enough', and what is the type of realism in question? I do not see how *any* conceptualist account of essentialism could be realist and I doubt that we can have any kind of a middle way here; either we go for full-blown metaphysical realism, or we are stuck with the conceptualism that the passage quoted above suggests. The motivation to go for the realist path should be obvious, so unless there is more to be said against essentialism of this sort, this hardly constitutes a refutation of metaphysical realism. The only further problem that Putnam mentions is that the kind of ontology that Kripke put forward presupposes essentialism and thus cannot be used to ground it (Putnam 1981: 220). This issues was of course discussed in detail in Salmon (2005) and is quite clearly true. But a theory of essentialism does certainly not need to rest on Kripke's shoulders; we have enough independent reasons to adopt essentialism, as will be made clear in the course of

this thesis.

Putnam also notes that a semantic reading of the types of essentialism described above causes some problems for the materialist, namely, it presupposes the notion of reference (ibid.). We do not have to look into the notion of reference very deeply, as the semantic reading is really not the way that we want to take. In fact it seems that the possible problems about reference are of a more serious kind to anyone who denies metaphysical realism. This is exactly because the metaphysical reading of Kripke-Putnam essentialism gives us a very straight-forward way to deal with most problems that are traditionally associated with reference.

The challenge that metaphysical realists can present to Putnam and other opponents of metaphysical realism is to ask them to offer some kind of an explanation for the success of our rational activities. If we live in a non-structured world, why does it appear to be structured, and, moreover, why can we manipulate it with the help of our knowledge of certain observed structural patterns, i.e. how can we explain, without acknowledging a 'ready-made world', that scientific knowledge accumulates, when it is clearly based on the assumption that reality is structured?

Putnam was no doubt aware of this challenge (cf. Norris 2002: 34) and he ends the paper under consideration now by offering a sort of an answer. The answer is 'a species of pragmatism' (Putnam 1981: 225). So, at this point Putnam was still selling his 'internal realism', he also refers to Nelson Goodman here (we will look at the connection between Putnam and Goodman as well as Michael Dummett in the next chapter). His

final judgement of metaphysical realism goes as follows:

> The approach to which I have devoted this paper is an approach which claims that there *is* a 'transcendental' reality in Kant's sense, one absolutely independent of our minds, that the regulative ideal of knowledge *is* to copy it or put our thoughts in 'correspondence' with it, *but* (and this its what makes it 'natural' metaphysics) we need no *intellektuelle Anschauung* to do this: the 'scientific method' will do the job for us. 'Metaphysics within the bounds of science alone' might be its slogan. (Putnam 1981: 226.)

Having considered the argument that Putnam puts forward in full, it is time to note some problems with it. First of all, speaking of transcendental in Kant's sense here is asking for trouble (not only because of the different interpretations of Kant). Yes, we are talking about a mind-independent reality, but that is all that we are talking about; just one world and our minds as a part of it. There is nothing particularly 'transcendental' about this. When put like this, the 'correspondence' between our thoughts and the world becomes a necessity. In terms of the *intellektuelle Anschauung*, Putnam is right, we do not need an 'intuition' or something like that to uphold this correspondence. But to say that the 'scientific method' is sufficient is over-stretching the idea of scientific method a bit. At least we need a new understanding of the scientific method if we want it to do the job of metaphysics, namely, we need to acknowledge the a priori part of scientific reasoning (which we will discuss in length later on). Consequently, it is our epistemic access to this a priori part which is in fact the *intellektuelle Anschauung*. Instead of calling this 'metaphysics within the bounds of science', it could be called 'science within the bounds of metaphysics', for the upshot is that all scientific disciplines are deeply involved with metaphysics.

This is an important point, and it seems that right here we could disagree with Putnam about the project of metaphysical realism. In a later paper he suggests that the kind of 'internal' or pragmatic realism that he holds is 'realism with a small "r"', whereas metaphysical realism deserves a big 'R' (Putnam 1988: 390 ff.). This is because Putnam sees metaphysical realism as 'a powerful transcendental picture', something that echoes the neo-Kantian line of thought that we already saw above. The problem, according to Putnam, is that realism with a big 'R' goes too far beyond the common sense view, it is absurd (ibid.). The problem that I see with his approach is exactly the same: it is completely unable to ground the common sense view, which metaphysical realism, on the other hand, manages to do just fine. Indeed, it seems that realism just *is* the pragmatic choice.

Consider once again the problem of mind-independent reality:

> What I am saying, then, is that elements of what we call "language" or "mind" *penetrate so deeply into what we call "reality" that the very project of representing ourselves as being "mappers" of something "language independent" is fatally compromised from the very start.* Like Relativism, but in a different way, Realism is an impossible attempt to view the world from Nowhere. (Putnam 1988: 392, italics his.)

Relativism is indeed what this sounds like, but I do not see what the 'different way' could be. Perhaps the strongest case that we can come up with to defend metaphysical realism is exactly that the only alternative is relativism. While some philosophers (like Rorty, whom Putnam discusses in the quoted paper) might be quite happy with relativism, there is a good reason why it is not the predominant view. We have also seen

Quine's case for relativism, but both Quine and Putnam have continued to pursue philosophical topics as if there *would* be a realist path after all. Quite often it seems to be the ambiguity related with reality that is independent of language and mind which motivates the relativist path. Presumably this is because obviously language is a relevant part of reality. But it is not as if realism would try to view the world outside language, but rather the world which includes language, and minds, and all the entities that it *de facto* includes. This is in no way a very revolutionary view, after all, there is a whole science which goes 'outside language' and analyses and modifies it all the time, namely linguistics.

It seems that what is at the bottom of this confusion is that Putnam takes metaphysical realism to say something about the 'transcendental' reality in Kant's sense. Putnam (1981: 226) notes that analytic philosophers have always tried to dismiss this sort of talk as nonsense, quite like Carnap did. As I mentioned already in the chapter concerning Carnap's attack on metaphysics, this tendency is quite justified, to a certain extent. But this is *not* what contemporary analytic metaphysicians are concerned with. The talk about two worlds, the phenomenal and the noumenal, is thoroughly misleading and this is exactly where most attacks against metaphysical realism go astray. This is why I have been talking about 'Aristotelian metaphysics' as opposed to 'Kantian metaphysics'. At times Putnam talks about metaphysical realism as if he had the Aristotelian sort in mind, but it is clear from a number of passages discussed above, that it is the idea of 'transcendental' reality and our epistemic access to it that he is troubled with.

Above I have repeatedly hinted at the metaphysical nature of science, or metaphysics as

a necessary basis for science. This is exactly what Putnam denies. He points out that, for instance, there are numerous formulations of Newtonian gravity which, although empirically equivalent and consistent with the relevant equations, disagree in terms of their metaphysical interpretation (Putnam 1981: 227). The same goes for quantum mechanics, where the differences in metaphysical interpretations are even more radical. The problem, then, is that although philosophers are eager to argue which one of these interpretations is the correct one, Putnam says that 'I know of not a single first-rate physicist who takes an interest in such speculations', which is supposed to show that the history of science does not support the claim that metaphysics and science are somehow continuous (ibid.). One only wonders which physicists Putnam knows, as this is *exactly* what most physicists are preoccupied about. The *correct* interpretation of quantum mechanics has probably been the hottest topic in theoretical physics for the last 60 years and, we might add, Putnam himself has contributed to this debate (although he, of course, is not a physicist). I hardly need to point out examples (I will nevertheless do it in later chapters). Putnam is of course right to note that there might be several different interpretations (of quantum mechanics or something else) which are metaphysically equivalent, but differ in notation (or perhaps language). But this poses no serious problems for metaphysical realism.[27] To be fair to Putnam, he does not direct the criticisms considered here towards Aristotelian metaphysics, but towards naïve Kantian metaphysics, that is, metaphysics without fallibilism. But I am already getting ahead of myself here; these issues will be discussed in more detail in following chapters.

27 We will discuss metaphysically equivalent theories in chapter 13.

2. Metaphysical Realism: the Putnam-Dummett-Goodman Challenge

Now that we have looked at Putnam's earlier critique of metaphysical realism it is time to give the stage to the post-1994 Putnam and see how his views have changed. In what follows we will see that to a large extent Putnam now thinks that his earlier case against metaphysical realism was flawed. We will also take a brief look at Michael Dummett's and Nelson Goodman's views and their relationship with Putnam's earlier views. As we will see, there are good reasons to think that the views of earlier Putnam, Dummett and Goodman are analogous in their challenge for metaphysical realism – thus the refutation of one would largely undermine the others. The issue, however, is not quite as simple as just a debate between realism and anti-realism (and not only because some philosophers think they are in the middle of these views), for as we saw in the last chapter, the characterisation of metaphysical realism that Putnam put forward is not entirely satisfactory.

In his John Dewey lectures (1994) Putnam takes an interesting and a rather surprising approach to the problem of realism. He starts with traditional realism and considers why it became a problem, concluding that what is at issue here is the epistemological problem of how we can be in cognitive contact with the world (Putnam 1994: 454). Obviously, this implies the need for some kind of an account of how we reach information with the help of our perception. The solution that Putnam considers is direct realism, or 'natural realism', as he calls the view that the objects of perception proper (i.e. not hallucinations etc.) are external things, and those external things cause us to have some subjective experiences (ibid.). This route is preferred because there are some

severe problems associated with the traditional 'Cartesian' view, whether materialist or not (Putnam refers to both McDowell and James in this connection) and thus it seems that we do not have a convincing case for why we should analyse sensory experiences as '*intermediaries* between us and the world' (ibid.). What follows is basically a reintroduction of the naïve problems traditionally associated with perception; dreams, hallucinations and so on. Something like this might sound quite uninteresting at first, but I do believe that Putnam has a point here and I am quite willing to follow him with this. An approach like this might certainly be a good deal more fruitful than his earlier approach which has only relativism to offer.

Putnam notes an analogy between the traditional, naïve problem of perception and the world, and the modern and supposedly not quite so naïve problem of language and the world:

> Just think: How could the question 'How does language hook on to the world?' even appear to pose a difficulty, unless the retort 'How can there be a problem about talking about, say, houses and trees when we *see* them all the time?' had not already been rejected in advance as question begging or "hopelessly naive"? The "how does language hook on to the world" issue is, at bottom, a replay of the old "how does perception hook on to the world" issue. (Putnam 1994: 456.)

I think that the main line of thought here is correct. Even though there certainly are some special questions about language, the main motivation for a substantial part of the discussion involving it is exactly the old 'how does perception hook on to the world' issue. At first this might not seem like a very important matter, but when we consider why the problem of perception and the world is not very widely discussed any more, it

emerges that the same reasons might undermine a lot of the discussion about the 'how does language hook on to the world' issue. To put it shortly, the reason for abandoning the problem of perception is exactly its naïvety and, frankly, the obvious dead-end that awaits us if we take the utterly sceptical path à la Descartes. I do not consider this result to be very surprising, for I am inclined to think that a great deal of the discussion concerned with the 'how does language hook on to the world' issue is quite misguided in a similar manner. However, what is crucial here is that Putnam tries to re-introduce the discussion about perception and the world and to show that we have to take the path of 'natural realism' to overcome the problems that still haunt the discussion. I have some sympathy towards this kind of idea, but I am afraid that Putnam still tries to dodge the metaphysical implications that any view about realism necessarily brings with it. Be that as it may, I fully agree with the initial move that Putnam has made here: we need to get over the idea that there is something between us and the world which is somehow incredibly hard to overcome. It seems to me that this view can lead to nothing else but scepticism and relativism.

Relativism is of course a direct implication of the view that Putnam used to hold, and this is certainly a positive development, but unfortunately the 'natural realism' that he now defends is not very sympathetic to metaphysical realism either. Putnam goes on to defend his form of direct realism, signs of which he sees in Wittgenstein, Husserl and especially Austin, by considering perhaps the most classical problem of all in regard to sensory experiences: dreams (Putnam 1994: 469 ff.). He responds to a number of other well-known counterexamples aimed against direct realism as well. Interesting as they are, we do not need to go into the details. But what is of interest to us is how Putnam

now sees his earlier work and the case against metaphysical realism which he put forward. We will also see how Putnam's earlier project is connected to Dummett and Goodman.

In the Dewey lectures Putnam acknowledges his debt to Dummett in regard to the development of his 'internal realism'. The problem that Putnam was preoccupied with at the time when he abandoned scientific realism for 'internal realism' was how reference is possible in the 'Cartesian *cum* materialist' philosophy of perception, which Putnam admits to have supported earlier (Putnam 1994: 460). This is, in effect, what the infamous model-theoretic argument amounts to (Putnam 1980).[28] At that time, Putnam thought that the solution to this puzzle lies in verificationist semantics, an idea that was initially put forward by Dummett (1978). According to Dummett's view, the debate over realism comes down to questions about semantics, although he apparently thinks that one can, in principle, be realist about certain things and antirealist about others (Dummett 1991: 15-16). In any case, Dummett argues for global anti-realism, and this is what inspired Putnam's 'internal realism', even though he does not want to go quite as far as Dummett; it seems to me that Putnam wants to preserve fallibilism, as he is not thrilled about Dummett's idea concerning the absoluteness of the verification or falsification of empirical propositions (Putnam 1994: 461-462).

Dummett insists that bivalence is in a central position for all types of realism, which is understandably connected with his view that realism is a semantic thesis (Dummett 1982: 561). This leads him to all kinds of issues into which we will not go now, for I find this approach very unappealing to start with, and it will be made clear why.

28 See Field (forthcoming) for discussion.

However, let us see how Dummett himself describes his position:

> My contention is that all these metaphysical issues [questions about truth, time etc.] turn on questions about the correct meaning-theory for our language. We must not try to resolve the metaphysical questions first, and then construct a meaning-theory in the light of the answers. We should investigate how our language actually functions, and how we can construct a workable systematic description of how it functions; the answers to those questions will then determine the answers to the metaphysical ones. (Dummett 1991: 338.)

So, it is a meaning-theory that Dummett wants, and it does indeed seem that his view does not leave much room for metaphysical realism. Furthermore, the rejection of bivalence is crucial for Dummett's antirealism and he seems to be inclined to think that some kind of *outright antirealism* is the most interesting alternative, and this, in his terms, means rejecting any kind of objectivist semantics altogether (Dummett 1982: 578, 582). The view seems to be very sympathetic to the idea of conceptual relativity that Putnam has put forward in his writings about 'internal realism' (see for example Putnam 1987). It would appear that it is exactly conceptual relativity that introduces the biggest challenge for metaphysical realism, because it seems that conceptual relativism is at least implicit in most anti-realist accounts. Putnam (1983b) expresses his sympathy towards Dummett's account in a connection where he also suggests that vagueness is problematic for metaphysical realists. In the same paper Putnam notes that he himself as well as Dummett and Goodman generally argue for a conception of truth as idealised justification or rational acceptability. On the other hand, at least Dummett quite clearly thinks that realism requires a commitment to the conception of truth as direct correspondence. In fact, this seems to be Dummett's case against the accusation of

considering realism solely as a semantic doctrine, for he thinks that a sufficient analysis in semantic terms provides an answer also to the epistemic questions which are traditionally associated with realism:

> [I]n so far as the meaning-theory takes a truth-conditional form, in so far as it equates the understanding of a sentence with a knowledge of the condition that must obtain for the sentence to be true, it has to explain in what a speaker's knowledge of that condition consists. When it is possible to give a non-trivial answer to the question in virtue of what a sentence of a certain form is true, if it is true, we have already an explanation of what a speaker must know in knowing the condition for a sentence of that form to be true. (Dummett 1982: 586.)

In short, Dummett suggests that a completed meaning-theory accounts for the epistemic part as well. However, we should not be fooled by this sophisticated argument, for any answers that Dummett's account provides are surely going to be very crude. In fact, we do not need to look far for a dismissal of Dummett's ideas, for Putnam (1994: 494 ff.) himself puts forward a strong case against Dummett. It is Dummett's strong verificationist account of understanding that worries Putnam – this is of course exactly what leads Dummett to abandon bivalence. An alternative might be some kind of a deflationary approach, but Putnam seems to have, finally, realised why metaphysical realists are so frustrated with the type of argument that Dummett has put forward:

> If we structure the debate in the way in which both Dummett and the deflationists do, then we are left with a forced choice between (a) either Dummettian antirealism or deflationism about truth, or (b) a retreat to metaphysical realism. Both Dummett's "global antirealist" and the deflationary advertise their accounts as rescuing us from metaphysical realism. But, surely, one of the sources of the continuing appeal of metaphysical realism in contemporary philosophy is a dissatisfaction

> with the only apparent alternatives. (Putnam 1994: 498.)

It is indeed a pleasure to see this kind of line from Putnam. A number of more detailed criticisms follow. For instance, one of the major problems for both the Dummettian and the deflationary account is that they cannot satisfactorily account for statements about the past that are true in the same sense as statements about the present (Putnam 1994: 499). The same goes for statements that may be true, although we presently lack any means to verify or falsify them, such as the Goldbach Conjecture (cf. Norris 2002: 29). This hardly even scratches the surface of the issue, but before we try to go into a little more detail, we have to take Goodman aboard, as advertised.

I will not try to give an exhaustive account of Goodman's views here, at this time we are merely interested in the connection between Putnam and Goodman (and Dummett) and in how Goodman constructs his case against realism. It was in his *Ways of Worldmaking* (1978) that Goodman put forward his irrealism and for our current purpose it might be helpful to take a look into some responses that it produced. Goodman introduced his irrealism, or pluralism, at about the same time that Putnam turned from scientific realism to his 'internal realism' and thus it is not surprising that Putnam (1979) sympathises with Goodman's project. What is especially interesting to us is that Putnam acknowledges the connection between himself, Goodman, and Dummett:

> It seems to me that Goodman's view is closely related to a point recently made by Michael Dummett and by me, notably the point that the metaphysical realist notion of truth cannot play any role in a theory of how we *understand* our various versions and languages. (Putnam 1979: 119.)

So it is clearly 'the metaphysical realist notion of truth' which is at issue here, and arguably that is exactly the crucial point in each one of these three influential critiques of metaphysical realism. The question is what is this particular notion of truth and why do Putnam, Dummett and Goodman think that it fails? Well, from what we have seen above, it would appear that the requirement for direct correspondence is the alleged problem for metaphysical realism and this kind of conception of truth is what all three of them want to avoid. The alternative that Goodman suggested relies on what he calls 'rightness' and 'validity'; this points towards the verificationist semantics that we discussed above and which was the basis for Putnam's 'internal realism' (Putnam 1979: 120). As we recall, this is exactly the view that Putnam noticed in Dummett too, although he modified it a bit:

> I proposed to identify "being true" not with "being verified," as Dummett does, but with "being verified to a sufficient degree to warrant acceptance under sufficiently good epistemic conditions." (Putnam 1994: 461.)

Or, as Putnam put it earlier, 'truth is an idealization of warranted assertibility' (Putnam 1979: 120). Thus, each one of these three opponents of metaphysical realism – the earlier Putnam, Dummett and Goodman – claim that the traditional realist conception of truth fails, and because of that metaphysical realism fails and we have to take another path. Although it is clear that Putnam is a bit uneasy about the full-blown Goodman-style irrealism, it is quite as clear that his own earlier account merely masquerades as more commonsensical (cf. Norris 2002: 85-86).

The idea of conceptual relativity is among the main premises shared by our three

opponents. Putnam has talked about conceptual relativity in many connections, but the best known example is probably the case of Carnap and the Polish logician (Putnam 1987: 18 ff.), where Putnam suggests that there is no way to solve the dispute about how many objects there are in a certain world (consisting of x1, x2 and x3) because the Polish logician believes in mereology and Carnap does not. What Putnam claims is that the idea of conceptual relativity is unacceptable to the metaphysical realist because there is no one meaning which can be fixed for the logical terms in question (ibid.). Even without going to the details of this example, we can easily see that something like this indeed has to be behind both Goodman's and Dummett's accounts as well. Putnam notes the connection himself in regard to Goodman by pointing out that Goodman's most serious arguments for irrealism depend on conceptual relativity (Putnam 1992: 183).

All three of these anti-realist accounts have some important similarities, most notably the argument which is based on the critique of the direct correspondence theory of truth and on conceptual relativity; obviously these two themes are connected as well. As we saw above, Putnam has now changed his views on a few important points, but in the Dewey lectures he still thinks that *metaphysical* realism is unacceptable, instead he hopes to find a middle way between the earlier Putnam-Dummett-Goodman view and thorough metaphysical realism.[29] It is from Wittgenstein that Putnam believes to have found such a middle way. The problem with this approach is, as Christopher Norris (2002: 89-90) notes, that it still 'leaves all the same problems firmly in place while purporting to resolve them through a commonsense appeal to our standard (communally warranted) ideas of reality and truth'.

29 I should also note that even more recently, Putnam (2004) has continued to appeal to the argument from conceptual relativity. Once again, we will return to the issue in chapter 13.

2. Metaphysical Realism: the Putnam-Dummett-Goodman Challenge

There are a number of different approaches that a proponent of metaphysical realism can take to address the argument from conceptual relativity and against the correspondence theory. There have even been attempts to counter it from within the semanticist framework: Terry Horgan and Mark Timmons (2002) claim that metaphysical realism is quite compatible with conceptual relativity and that it does *not* require a commitment to the conception of truth as direct correspondence. I am afraid that they might concede a bit too much to the anti-realist camp, but this approach is worth noting, as it shows that the battle is not automatically lost even if we concede the semanticist framework.

A better way to defend metaphysical realism is to abandon the semantic approach which all the anti-realist accounts that we have looked at have taken. The main arguments against metaphysical realism have been derived from a semantic notion of truth of which metaphysical realism supposedly cannot offer a plausible theory, granted the problems that direct correspondence has. Well, the way around this is to do exactly what Dummett and others tell us not to do: to start from metaphysics instead of semantics. As we saw, in the Dewey lectures Putnam concedes that the metaphysical realist is quite entitled to do so. None of the arguments provided by Dummett, earlier Putnam or Goodman justifies the preference for a semantic approach. However, even if we do start from metaphysics, the gap between language and reality has to be closed in the end. That is, at some point we have to give some kind of a theory of truth. I believe that this is where we should turn to a theory of truthmaking. Of course, sometimes theories of truthmaking are taken as a way to explicate the correspondence theory of truth and in a way, they are. But what is crucial here is that a theory of truthmaking is (or can be) very

intimately connected with a realist ontology, and this is the starting point: from a realist ontology to a theory of truth. I will not go into truthmaking just know though, here I merely wish to point the way out of this dilemma.[30]

Given this discussion, where are we with metaphysical realism? At least it seems that the general line of thought seen in earlier Putnam, Dummett and Goodman poses no impossible challenges for metaphysical realism. In fact, it poses only one challenge, that of giving an account of truth. And I think that we can indeed overcome this challenge and give an account of truth which is realist in nature and also at least as tenable as the conception of truth as idealised justification or rational acceptability. But although Putnam has abandoned his earlier anti-realist line, and indeed become an ally against Dummett and Goodman, he still insists that there is some kind of a middle way between thorough realism and anti-realism. His very latest comment on the matter is that while he previously held that the argument from conceptual relativity refutes metaphysical realism in all its forms and he used to be frustrated by metaphysicians who insist that he has not refuted *their* form of metaphysical realism, he now sees that this was a mistake, indeed, he acknowledges that metaphysical realism may be compatible with conceptual relativity (and in a very trivial sense, it is, as will be shown in later chapters).[31] What continues to trouble myself and, apparently, others as well (cf. Norris 2002: 89-90), is that Putnam still seems to be impressed by some anti-realist arguments, namely the Wittgensteinian ones, albeit not the Dummett-Goodman type arguments. Why this is a problem is precisely because there is no middle way between realism and anti-realism, the Wittgensteinian arguments have the same logical conclusion as the Dummett-

30 We will discuss truthmaking in sufficient detail in chapter 10.

31 This is the view that Putnam put forward in his closing address at the 'Putnam @ 80' conference celebrating his 80th birthday at UCD in March 2007.

Goodman type arguments:

> In each case – so the argument runs [Wittgenstein and Dummett type arguments] – the realist commits a blatant logical absurdity by claiming to possess knowledge of that which exceeds the limits of present-best knowledge or for which there exists no decisive evidence or adequate proof-procedure. (Norris 2002: 89.)

However, as Norris correctly adds, arguments of this type are intimately connected with the strong verificationist thesis, on the lines of Dummett, which is exactly what the Putnam of the Dewey lectures dismisses. The upshot is that, although Putnam wishes to avoid it, he is once again on the slippery slope down to anti-realism proper.

What we are left with, then, is to somehow address the worry that the earlier Putnam-Dummett-Goodman line of criticism raises – here it is truthmaking that seems to offer the most plausible solution. The challenge that the more recent Putnam has raised is, at least seemingly, a very modest version of the earlier one, although if what was said above is correct, the implications are quite as serious. Perhaps the most promising reply to this challenge is to point out that the alternative theory proposed by the opponent can not cash out what it promises, namely the commonsense benefits of metaphysical realism without the ontological costs. Putnam's is not the only account that proposes to do something like this, for instance, Eli Hirsch, whose views we will look at shortly, has defended a view which is realist in tone, but claims to get by without the metaphysical baggage. Obviously, the burden of proof here is on the opponent of metaphysical realism. As we will see, these approaches have their own persistent problems, but my general reply to this line is that there is no middle way: either you endorse realism or

you do not. Putnam is a good example of the kind of trapeze artist that one must be to balance between realism and anti-realism, but it is a long fall, and it seems that Putnam is on his way down.

3. Frank Jackson: Metaphysics as Conceptual Analysis

It is sometimes suggested that the subject-matter of metaphysics is concepts; that metaphysics is conceptual analysis. One of the best known proponents of this sort of view is Frank Jackson; his *From Metaphysics to Ethics: A Defence of Conceptual Analysis* (1998) is devoted to the subject. It will be my purpose here to show where his account fails. This task will require looking into some quite technical matters, as Jackson relies heavily on so called two-dimensional modal semantics and also puts forward a conceptualist interpretation of modality. Thus, the nature of metaphysical necessity and the necessary a posteriori are among the key topics.[32]

A favourable reading of Jackson's description of 'serious metaphysics' does not seem to differ very much from how a metaphysical realist might describe the nature of metaphysics: according to Jackson, the task of metaphysics is to find a limited list of the basic ingredients of reality with which to operate (Jackson 1998: 5). A metaphysical realist could agree with this, as this seems to be compatible, for instance, with the view that metaphysics is category-theory, i.e. categories are what determine this limited list of the ingredients of reality. However, Jackson goes on to argue that this is all about conceptual analysis, not categories. His main argument is the 'entry by entailment' thesis.

Basically, 'entry by entailment' means that two stories, like physicalism and the psychological, can be connected so that the first, in this case the physical, tells a

32 Our discussion of these matters will be limited here, focusing only on some problems with Jackson's account. A more detailed account will follow in chapter nine.

complete story about other one, i.e. the psychological (Jackson 1998: 9). Conceptual analysis enters the picture because, in effect, a story told in one *vocabulary* is made true by another one told in a more fundamental vocabulary (Jackson 1998: 28). This idea is followed by a common appeal to the importance of language even when discussing metaphysics:

> Although metaphysics is about what the world is like, the *questions* we ask when we do metaphysics are framed in a language, and thus we need to attend to what the users of the language mean by the words they employ to ask their questions. (Jackson 1998: 30.)

This is still fairly uncontentious, and indeed true. However, Jackson's answer to how we should determine what the users of language *do* mean by their words can certainly be questioned, as he seems to think that this is done by comparing intuitions – everyone's intuitions – and extracting the concept of, say, K-hood from this. Now this, as Jackson admits (p. 32), does not sound like a particularly philosophical project. The real problems start to emerge when Jackson elaborates on this idea and introduces his idea of 'folk theory'. Jackson is convinced that what we are interested in when discussing examples like Putnam's Twin Earth scenario is the folk conception of things. He says that 'Putnam's theory is built precisely on folk intuitions' (p. 39). However, I think that it is quite clear, especially from Putnam's (1970) earlier formulation of the matter, that as folk conceptions can easily fail, it is the expert's view that we, folk, should turn to. Be that as it may, Jackson offers enough examples of his own for us to be able to decide what the relevance of analysing folk conceptions in fact is. Here is one of them, based on four-dimensionalism's treatment of change (1998: 43):

3. Frank Jackson: Metaphysics as Conceptual Analysis

Pr. 1 Different things (temporal parts or whatever) having different properties is not change. (Conceptual claim illustrated in the case of temperature)

Pr. 2 Things change. (Moorean fact)

Conc. Four-dimensionalism is false. (Claim about the nature of our world)

Here, according to Jackson, we see conceptual analysis being given a major role in an argument; he calls this an 'immodest role'. Fortunately he goes on to admit that this is too strong a role for conceptual analysis. It seems quite obvious that there are some deep metaphysical issues at hand in the example and we surely need to look deeper than the meanings of the concepts to solve them. Jackson only argues for the 'modest role' of conceptual analysis, namely, that the role of conceptual analysis is to describe the world in some non-fundamental terms, given a certain description of the world in more fundamental terms (1998: 44). Now, provided that this is all there is to the story, we could still accommodate it without any major conflicts. However, the link between realist metaphysics and the sort of role that Jackson here suggests for conceptual analysis is yet to be established. Just consider Jackson's example. He admits that conceptual analysis cannot give us the strong, metaphysical results that the argument seeks to establish. But no doubt there *is* a way to solve problems concerning change (and temporal parts or whatever). How? Well, by engaging in metaphysics, not conceptual analysis. Unfortunately, it gets worse, because Jackson later forgets his own, modest interpretation of conceptual analysis and goes on to draw some quite immodest conclusions about the necessary a posteriori.

Before we advance, it might be a good idea to say something about the background of Jackson's project. The roots lie in the debate over physicalism; Jackson's earlier example

concerning the entry by entailment thesis hints at this. Interestingly, this topic has also been pursued by David Chalmers (1996), and by similar means, but towards a different conclusion. We do not need to go into the details, but the central idea relies on a point which will be discussed shortly: there is an a priori identity underlying each a posteriori identity, and it is this a priori identity that needs to hold if there is to be any identity at all. So, Jackson is arguing that in the case of brain states and psychological conditions, which would be an a posteriori identity, there is also an underlying a priori part. Jackson's latest view is that this identity holds, while Chalmers argues against it. What is interesting to us, rather than the details of the actual debate, is that it is precisely the commitment to the underlying a priori part in all a posteriori identities that makes conceptual analysis so crucial for Jackson. However, the contentious issue is the exact *nature* of this a priori part. Jackson thinks that it is closely related with our folk conceptions, as noted above.[33]

In a passage titled *The Sense in Which Conceptual Analysis Gives A Priori Results* (1998: 46-52), Jackson introduces his version of the now popular two-dimensional framework and applies it to Putnam's Twin Earth scenario. The discussion about two-dimensionalism is far too broad to be extensively covered here, but I will very briefly explain some basic features of the system insofar as they are relevant for our current discussion.[34] The basic idea is that each term (or sentence) is associated with a pair of values – these can be called primary and secondary intensions (cf. Chalmers 1996) or A- and C-intensions[35] (cf. Jackson), or something quite different. The important feature is

33 I will say a lot more about this exact issue in chapter nine, and in fact defend the idea of an underlying a priori part in a posteriori necessities. However, my understanding of the nature of this a priori content differs radically from Jackson's.

34 Scott Soames' *Reference and Description* (2005) is dedicated to the subject.

35 A- and C-intensions are the functions which fix the respective A- and C-*extensions* of a term *T* in a world.

the relationship between these two. For some words, the things that a word applies to in a world are the same regardless of whether the world is considered as actual or as counterfactual. Jackson (1998: 49) mentions the word 'square' as an example of a word for which the A- and C-intensions (or primary and secondary intentions) are always the same in this manner. However, some words, such as 'water', are more problematic. Why is this the case? Well, the idea is that if we consider a counterfactual world *as if it was actual*, it is the counterfactual world that fixes the reference. There are numerous ways to interpret this, but in Jackson's case it is plausible to think about the different contexts – different counterfactual worlds considered as actual – as different *epistemic possibilities*. Furthermore, there seems to be a distinct epistemic possibility that water is XYZ. The upshot is that water's A-extension and C-extension differ at some worlds.[36]

What Jackson, in effect, argues, is that conceptual analysis enters the picture when we deal with A-extensions, as they involve the a priori: 'What we can know independently of knowing what the actual world is like can properly be called a priori. The sense in which conceptual analysis involves the a priori is that it concerns A-extensions at worlds, and so A-intensions, and accordingly concerns something that does, or does not, obtain independently of how things actually are.' (1998: 51). As it stands, the statement seems rather arbitrary, but perhaps we can make some sense of all of this in what follows.

We should advance to what is perhaps the most important issue in this debate: the role and interpretation of modality in the argument. Jackson devotes quite a few pages to the discussion about metaphysical necessity and conceptual necessity, and the nature and

36 See Jackson (1998: 49-50) for details.

role of these two kinds of modality is indeed a key issue here. Very briefly, Jackson thinks that they are one and the same, while others think that we are dealing with two fundamentally different kinds of modality here.[37] Presumably we can make some sense of this by examining propositions that are necessary and a posteriori; we are especially interested in the so called metaphysical necessities. Conceptual necessity, however, should be available to us merely with the help of a priori reasoning. So, the popular account is that metaphysical necessities (at least usually) cannot be reached merely with the help of a priori reasoning and thus must belong to a different domain of modality. Jackson disagrees:

> I think, as against this view [the distinction between metaphysical and conceptual necessity], that it is a mistake to hold that the necessity possessed by 'Water = H_2O' is different from that possessed by 'Water = water', or, indeed, '2 + 2 = 4'. Just as Quine insists that numbers and tables exist in the very same sense, and that the difference between numbers existing and tables existing is a difference between numbers and tables, I think that we should insist that water's being H_2O and water's being water are necessary in the same sense. The difference lies, not in the kind of necessity possessed, but rather where the labels 'a priori' and 'a posteriori' suggest it lies: in our epistemic access to the necessity they share. (Jackson 1998: 69-70.)

Jackson does not leave it at this, as he offers two reasons for abandoning the distinction between metaphysical and conceptual necessity. The first one is what he calls 'The Occamist Reason': we should not multiply modality beyond necessity. But why is the distinction between these two kinds of necessity such a bad thing? Well, according to Jackson (1998: 71), it leads to a puzzle about the necessary a posteriori. What Jackson is puzzled about is how can someone understand a sentence that is necessarily true without

37 Once again, I will return to these matters in chapter nine.

knowing that it is necessary, which seems to be the case with many metaphysical necessities (which are often a posteriori), and this is supposed to suggest that we would do better without this strange type of necessity. But while there certainly is more to say about these matters[38], they are hardly as puzzling as Jackson suggests. As Scott Soames (2005: 152-153) has recently argued, Jackson is taking a very contentious view for granted here and this is what leads to his puzzlement. The view in question was originally suggested by David Lewis and Robert Stalnaker and it explains 'understanding' as a function from possible worlds to truth values. Jackson's proposed solution for the puzzle is to take advantage of the two-dimensional framework and allow that although we understand some sentences without knowing their truth-conditions *in one sense*, there is always *another sense* in which we do know their truth-conditions.

Let us take a look at Jackson's example to elaborate on this. He examines the sentence 'He has a beard' (1998: 73). Jackson thinks that he can understand this sentence without necessarily knowing which proposition is being expressed, i.e. without knowing who exactly is supposed to have the beard. This is because he knows how to get to the proposition from the contextual information (which is inadequate in this case). Now, although *in one sense* Jackson does not know the truth conditions, as he does not know which proposition is being expressed, there is *another sense* in which he does, because he knows perfectly well how to get to the proposition from the appropriate contextual information. Thus, given the contextual information, the proposition is within our reach. This is how he tries to explain the puzzle of understanding necessary a posteriori sentences without knowing which proposition is being expressed.

38 See Hughes (2004: 189-192) for further discussion.

One way to understand what exactly puzzles Jackson about the whole issue is that he is concerned about the compatibility of 'folk theory' and a posteriori necessity. However, the problem with this approach is that Jackson's treatment of sentences is by no means on the lines of any widely accepted folk theory. Just consider the previous example. Admittedly, we do understand what 'He has a beard' means: it expresses a property (we also know that this property belongs to a man). But Jackson takes the context away and grounds the understanding in the fact that we *would* know which proposition is being expressed if we knew the context. Consider language without any kind of context. If you had never seen a beard, you probably would not know what the word 'beard' means. The problem that emerges is that we cannot imagine language without a context at all. No one, unless he is crazy, utters 'He has a beard' without any apparent referent. The reason for this is exactly that language always requires a context. What this means is that knowing the truth conditions of a proposition just *is* knowing how it depends on its context. What Jackson is trying to do is to separate these two and then rediscover the connection. Thus, if there is a puzzle, I do not see a way out of it for Jackson. Then again, there only is a puzzle for those who endorse the view of understanding based on Lewis' and Stalnaker's suggestion. Soames comes up with a similar conclusion:

> In sum, nothing Jackson says provides any reason whatsoever to believe that there is any obvious, widely accepted, or even defensible view about the connection between understanding a sentence and knowing its truth conditions which generates a puzzle about how sentences that express necessary truths can be understood and yet not known, simply on that basis, to be necessary, or true. (Soames 2005: 158.)

Whatever moral we want to draw from this, it should be noted that the example

discussed above, i.e. 'He has a beard', and our main interest, i.e. propositions such as 'Water = H_2O', are quite different. Jackson attempts to extend his case for 'He has a beard' to cover propositions like 'Water = H_2O', but this should immediately strike us as problematic. Basically, what is being suggested here is that natural kind terms like 'water' are indexicals. Soames (2005: 164- 170) discusses the apparent problems that this introduces at some length and makes it quite clear that treating these sentences in the same manner is very dubious. The special nature of natural kind terms should be apparent from the following story concerning water.

After we found out that water is H_2O, we introduced the current use for the term 'water', which connects it with the chemical formula H_2O. We can indeed say that someone who does not grasp this story uses the word 'water' incorrectly. Understanding a natural kind term requires knowing that it refers to a natural kind. However, this is not to say that, for example, a child who does not yet know that water is H_2O, or does not understand it, could not use the term 'water' correctly, because *we* know that the child refers to water in the way that it was taught to her. Indeed, we have a good reason to say that the child does not know what exactly is the referent of the uttered word – the deep structure of water – but this does not cause problems. The deep structure of water has been H_2O all the time, but the sentence 'Water is H_2O' has been meaningful only for the last 250 years or so. In one sense, only a few of us *really* know what water is about, for most rely on experts, chemists in this case. But this does not mean that we are unable to grasp the meaning of the concept.[39]

39 This and other issues concerning semantics will be discussed also in chapter 12.

3. Frank Jackson: Metaphysics as Conceptual Analysis

There are two issues that one could easily fail to distinguish in this story.[40] The first is involved with what I called the 'deep structure' of water. The idea is that there are some facts, namely that water consists of hydrogen and oxygen in 2:1 relation, which caused and sustain the need to fix a name for that compound, or natural kind. This is completely independent of the understanding or meaning of the word 'water'; but the other issue concerns the usage of the word 'water' and the question about how we determine when people understand the word and use it correctly. In terms of the second issue, we are interested in the facts that one must know to be able to understand and use the word 'water', such as the fact that it refers to a natural kind, as I suggested above. Soames (2005: 183) argues that Jackson confuses something like these two issues. Jackson is telling a story about the second issue, as his account is all about understanding. However, he claims that descriptive facts like 'Water covers most of the Earth' are necessary and sufficient for an explanation of the deep structure as well (Jackson 1998: 80-83).

I mostly agree with Soames' critique of Jackson, but he fails to underline why the distinction made above is so important. Basically, the distinction is between metaphysics and semantics. This is not the main concern of this chapter, but it is worth noting here. Consider again the first issue: it is the fact that water has an underlying deep structure that makes it possible for us to pick it out as a distinct kind and refer to it. This is a fact concerning all natural kinds; indeed, an a priori truth.[41] Of course, there is a need to verify the connection between what we believe to be a natural kind and what

40 I refer to Soames (2005: 182-183) here. He suggests that Jackson confuses two things, which are, in essence, the ones that I am about to distinguish.

41 Admittedly it is arguable that water is not in fact a natural kind at all, but nothing here depends on the status of compounds, i.e. are they or are they not natural kinds. For the sake of the argument, I assume that they are.

in fact is its deep structure. This is the a posteriori part. Once it is has been verified that a natural kind has a certain deep structure, e.g. that water is H_2O, then the circle is closed. The a priori part was already there, and it has nothing to do with semantics, rather, it is grounded in ontology. In the light of this, it seems that the a priori part is often underestimated and this is why the issues recognised above are easily confused.

The conclusion that we can draw from the previous discussion is that Jackson introduces no compelling reasons for us to amend our view of the necessary a posteriori or to accept his two-dimensional interpretation. However, we have not yet examined all of Jackson's arguments against the distinction between metaphysical and conceptual necessity:

> The key point is that the right way to describe a counterfactual world sometimes depends in part on how the actual world is, and not solely on how the counterfactual world is in itself. The point is not one about the space of possible worlds in some newly recognized sense of 'possible', but instead one about the role of the actual world in determining the correct way to describe certain counterfactual possible worlds. (Jackson 1998: 77-78).

It is not exactly clear what Jackson's point is here, as he does not really clarify his interpretation of possible worlds. Presumably the idea is something like this: with the help of the two-dimensional framework, we can handle a posteriori necessities as linguistic special cases. What we learned from Kripke and Putnam and the Twin Earth scenario according to Jackson (1998: 77) is how to describe these peculiar sentences, rather than what their modal status is. However, this hardly brings any new arguments into the picture, for it is only the two-dimensional framework and all the baggage about

the interpretation of 'understanding' that corroborates Jackson's case. Moreover, Jackson ought to make clear what he means when he talks about possible worlds. The obvious way to understand two-dimensionalism is to interpret it as a way to construct and examine epistemic possibilities, and although Jackson does not explicitly say anything about this, it does seem that this is what he has in mind. What he *does* say about the subject is that the only sense of modality that we need is that of 'the weakest or most inclusive kind, whatever exactly that may be' (1998: 80). Now, presumably, this refers to something like conceptual or epistemic possibility.

So far, nothing that Jackson has said gives us a very good reason to reduce metaphysical necessity to conceptual necessity, or the a priori part in a posteriori necessities to concepts. As Jackson acknowledges, his interpretation of Putnam's Twin Earth parable is too deflationary for many (1998: 79). Jackson wants to talk about concepts and word usage, while it is essential properties that we are interested in. This falls back to the case of separating the two different issues involved with the debate. Jackson is worried that people will be seduced to think that 'Water is H_2O' being a posteriori necessary is a separate issue from the right usage of the term 'water' (ibid.). We, of course, are worried that people will be seduced to think exactly the opposite. It might be worthwhile to note that the original inventor of the Twin Earth scenario seems to share our intuitions, for according to Putnam (1990: 59-60): when a scientist refers to 'water', his intention (and intuition, I would add), is to refer to whatever has the 'deep structure' of water, not its superficial characteristics.

At this point, we should note something about the difficulty of these issues. The picture

that Jackson is drawing for us is very simple: we must only deal with conceptual necessity. The Twin Earth story was just concerned with descriptions and thus the problem of a posteriori necessity is merely a linguistic phenomenon. Well, for those of us who do not agree with this, the problem of a posteriori necessity is quite a bit harder. Soames notes this difficulty and suggests that Jackson is perhaps in even more trouble with it, but I disagree. Thus Soames:

> [I]t is not obvious that the possibilities outlined in Putnam's Twin Earth fable, and related scenarios, are genuinely possible in the sense required by Jackson. They are, of course, epistemologically possible – we can't know a priori that a world-state doesn't obtain in which something other than H_2O – call it *XYZ* – has all the normal observational properties that water actually has [...]. But this is not enough for Jackson. Since he refuses to countenance epistemological possibilities that are not metaphysically possible, he is obliged to tell us why we should think that such world-states really are metaphysically possible. (Soames 2005: 191.)

Soames quite correctly advances to point out that the Twin Earth story might not in fact be metaphysically possible, or that we at least would need more proof to justifiably hold that, but I am not convinced that this poses as big a problem for Jackson as Soames suggests. This is because it seems to me that Jackson is not so much refusing to acknowledge epistemological possibilities that are not metaphysically possible, but rather dismissing metaphysical possibility altogether. However, Soames (2005: 136), quite surprisingly, appears to think that proponents of two-dimensionalism are, in fact, committed to the view that metaphysical modality is the only kind of modality. Judging from the few explicit passages that Jackson devotes to the subject, I would certainly draw the opposite conclusion: Jackson is a full-blown conceptualist in terms of

modality. While Jackson and others who use the two-dimensional framework might, at times, seem to be saying that it is only metaphysical possibility that they are willing to acknowledge, we must keep in mind that they could be using the term 'metaphysical possibility' in a rather misleading way. As a matter of fact, if Jackson were to genuinely hold that epistemological possibility is restricted to metaphysical possibility, it would effectively refute his project, for he would be quite unable to argue for his conception of the necessary a posteriori.

In this case, it is clearly Soames who begs the question. The way he puts it is that Jackson ought show that the Twin Earth scenario is metaphysically possible, because given that he identifies metaphysical and epistemological modality, and the fact that the Twin Earth scenario is certainly epistemologically possible, it must also be metaphysically possible (Soames 2005: 191). What Soames fails to realise is that for Jackson metaphysical possibility just *is* epistemological possibility, and thus showing that the Twin Earth scenario is metaphysically possible would be, for him, to show that it is epistemologically possible, which is hardly a problem. The moral, if any, that we can draw from this is that one should be quite explicit and careful about the usage and interpretation of metaphysical possibility and necessity. One possible way of doing this is to restrict the word 'metaphysical' to the contexts where modality is taken to be grounded in essential properties (or something else 'in the world'), in other words, to contexts in which we are talking about mind- and language-independent modality.

Perhaps we should be even more careful with our use of epistemological and conceptual modality, as they seem to lead people to misinterpret modality altogether. I am inclined

to think that Jackson might actually be right about us needing only one kind of modality. However, this is certainly not epistemological or conceptual modality: we should opt for metaphysical modality instead. But I am getting ahead of myself here, for I will put forward my own account of modality later.

Given this discussion, it should be easy to list the major problems with Jackson's account. His Occamist project against two sets of possible worlds is well justified, but in my view he is dealing with the wrong set of possible worlds. Apparently Jackson likes to think that his account is very common-sense, close to folk conceptions, but he fails to see that these conceptions are already very heavily affected by metaphysical presuppositions. Jackson's endorsement of the a priori part in a posteriori necessities is also correct in its spirit, although no thanks to his examples that rely on two-dimensionalism. The a priori part is certainly there, but it is independent of our language and thoughts. Jackson does not see (or does not want to see) the difference between 'Water = H_2O' and 'Water = water' because he interprets them as two different ways to describe the same thing. But in the first case we are talking about the deep-structure of water, and to make sense of that we *must* examine what makes water what it is, what is its essence, not just how we use the term 'water'.

In his afterword to the discussion about metaphysical and conceptual necessity, Jackson tells us that it is crucial that we keep in mind whether we are talking about sentences or about the propositions associated with them (1998: 84). I agree with him, but it is even more crucial that we clarify what is meant with 'a proposition associated with a sentence'. Jackson – unfortunately – relies once again on the two-dimensional

framework. Consider the following passage:

> It is the C-intension that people most often have in mind, naturally enough, when they talk of the proposition *expressed* by a sentence, and what I am saying in this terminology is that the proposition expressed by 'All water is water' and the proposition expressed by 'All water is H_2O' is one and the same, namely, the set of all worlds, so there cannot be any difference in modal or epistemic status. (Jackson 1998: 85.)

This is correct, provided that we are talking about the set of all *metaphysically* possible worlds. Of course, this is not what Jackson is talking about; the error is inevitable with two-dimensionalism because it tends to turn our attention to epistemological possibility. There certainly *is* a difference in the epistemic status of 'All water is water' and 'All water is H_2O'. If people really have the C-intension in mind when talking about the proposition expressed by a sentence, then they are mistaken. Fortunately, this is not the case, as generally people tend to agree with the Kripke-Putnam line, and this is exactly because we are in fact operating with metaphysical possibilities, not epistemological.

4. Eli Hirsch: Watered-down Metaphysics

One thing that a proponent of metaphysics proper does not want to see is pseudo-metaphysics done under the label of metaphysics. Very often the representatives of this kind of watered-down metaphysics claim that the classic problems of metaphysics are linguistic in nature and that we should merely examine how we use our language and why is it used in the way that it is in fact used. While these might be interesting questions, they are not the kind of questions that realist metaphysics should be primarily interested in. Moreover, when metaphysical problems are considered as linguistic problems, the results are often quite unsustainable, indeed, relativism of one sort or another seems to be in the end of this path. Of course, this is not very surprising, as it is somewhat easy to construct linguistic problems which do not seem to have any apparent answers – we shall see some examples of this. However, when the very same problems are considered as genuine metaphysical problems, they often turn out to be quite uninteresting, either because there is an easy solution available, or because the provided pre-conditions violate the a priori conditions of a coherent theory; often this points to a category mistake. There are a number of philosophers who we could mention in this connection, but here I will focus on just one: Eli Hirsch.

Hirsch is especially interesting to us because he has examined some quite traditional metaphysical problems, such as identity, and suggested that they should be interpreted as linguistic problems (or something similar). For example, in Hirsch (1982) he discusses persistence and identity through time. We should not be fooled by the seemingly metaphysical attitude that he takes towards the problem: Hirsch does

consider whether persistence could be grounded in continuity or sortals, but eventually abandons both of them as insufficient by themselves and ends up with a relativistic account. In his own words:

> As a relativist I hold that our identity scheme is not the only one that could in principle be employed in making true statements about the world. But [...] I am inclined toward the empirical speculation that our ordinary identity scheme, or at least the basic core of that scheme, is instinctive to human beings. My conjecture would be that, as a matter of contingent fact, each of us enters the world innately disposed in some manner to interpret experience in terms of our basic idea of persistence, in terms, that is, of the idea of persisting objects whose careers unfold along continuous change-minimizing paths. (Hirsch 1982: 162-163.)

Hirsch explains these 'innate dispositions' which are supposed to guide how we interpret our experiences about persistence with the help of another concept: unity (ibid., ch 8). Our innate 'sense of unity' thus provides the ground for our conception of persistence and related issues. But this is clearly not how a metaphysical realist would handle the problem. Plausibly, from a realist point of view, the problem of persistence concerns the identity of the objects *in the world*, not how we think about them. At the very least, we ought to require an explanation of *why* we have this innate sense of unity and, furthermore, what is it grounded in? To clarify what is in fact going on here, we should take a look at some of the examples that Hirsch gives us.

Hirsch (1982: 32-33) asks us to consider a language in which two new words are introduced: 'incar' and 'outcar'. These words replace the word 'car' and are defined in the following way. 'Incar' refers to cars inside a garage, or to any parts of a car which are inside a garage. 'Outcar' refers to cars outside a garage, or to any parts of a car which are

outside a garage. In other words, the very same car can be partly an incar and partly an outcar at the same time. Hirsch admits the strangeness of this example, but asks us what criteria of identity an example like this in fact violates (ibid.). This is supposed to be an argument against the sufficiency of continuity in analysing identity, as it seems that shrinking incars and growing outcars do not violate continuity criteria. Thus, Hirsch takes us one step towards the relativistic conclusion that was introduced above. But before we try to make sense of this, let us go a bit further with Hirsch.

In addition to continuity, sortals are often discussed as a possible way to cope with the changes that objects undergo when trying to explain their persistence. Hirsch discusses the subject extensively, but we are more interested about the passage where he expresses doubts about the sufficiency of sortals, as this is, again, what leads him towards relativism. Hirsch argues that someone's ignorance concerning sortals would not be a problem when analysing situations like a car moving out of garage (Hirsch 1982: 76). His example is a child who is unfamiliar with the sortal 'car', but who would nevertheless without a doubt describe a car moving out of a garage in correct terms; certainly not in terms of the 'incar-outcar' language. This supposedly implies that sortals cannot be necessary for grounding identity-criteria.

Suspicions should arise at this point, if they have not earlier. However, we should still see where all this leads. Hirsch obviously wants to know what grounds the evident success of the sortal-ignorant subjects in situations like the child observing a car leaving the garage, or an Eskimo observing a tree (which does not undergo any change during the period of observation) and not identifying the tree with the tree trunk, which is also

one of Hirsch's examples (Hirsch 1982: 77 ff.). His answer relies on what he calls 'the basic rule':

> The basic sortal-neutral identity rule which we confidently expect to govern the Eskimo's thought might then be put roughly: Trace an object's career by following a spatiotemporally and qualitatively continuous path which minimizes changes as far as possible. (Hirsch 1982: 78-79.)

Hirsch emphasises that his basic rule is also capable of explaining situations where some change does occur during the period of observation; say, a leaf might fall from the tree, but this obviously would not be a sufficient change to violate the rule. This 'change-minimizing condition' is among the innate dispositions of interpretation on which Hirsch grounds persistence. He does refine his basic rule a bit, but we do not need to go into the details, the idea is clear enough.

It is also clear that this 'change-minimizing condition' is in quite a lot of more trouble than the traditional account relying on continuity and sortals. Hirsch addresses some of these problems, but the condition strikes me as inadequate regardless. For consider the change that a caterpillar undergoes when it becomes a butterfly, how does Hirsch's basic rule cope with situations like this? It seems obvious that a child, or an Eskimo for that matter, who is unfamiliar with the process in question would consider the caterpillar and the butterfly to be two distinct objects. Furthermore, what innate disposition could help them in such a situation?

The reason why cases like the caterpillar and the butterfly as well as Hirsch's examples are problematic is because Hirsch is approaching them from the wrong direction.

Someone who is a realist about these matters should have been suspicious already when Hirsch's incar-outcar example was introduced, for, as he puts it, we are asked to consider a *language*, in which the word 'car' is replaced with 'incar' and 'outcar'. But the realist could ask: what does this imaginary and apparently wrong language tell us about the identity-conditions of real cars? The example might show us that the way that we think about cars is realistic, but that should be self-evident. Of course, Hirsch's argument is that the 'incar-outcar' language does not violate any criterion of identity in an apparent way, or at least not the continuity criteria. Continuity aside, it is clear that a metaphysically serious account of incars and outcars could not hold. The fact that we can create some arbitrary framework that relies on our observation of a car leaving a garage does not change what really happens: a physical body moves from a spatio-temporal location to another. This is naturally exactly what Hirsch's basic rule states, albeit he adds the change-minimizing condition. However, I find it quite implausible to conclude from this that we have some innate disposition to interpret the movement of cars in the described way, rather, physical bodies of that particular kind *actually* behave in this way. So, we indeed do have an innate disposition: it is to interpret things as they actually are.

Further, it seems that Hirsch has not been able to capture even the actual way of interpreting the spatio-temporal paths of objects quite correctly, as was noted in the case of the caterpillar and the butterfly. It seems to me that this is because he insists on the sortal-neutral account: objects like cars and butterflies are clearly instances of different kinds of entities and thus they have different criteria of identity and continuity. Nothing in Hirsch's story gives us means to account for this difference, because he insists on a

sortal-neutral account. Consequently, Hirsch's account has a very unfortunate in-built feature: its inability to account for tricky cases like the butterfly and the caterpillar produces category-mistakes. The possible appeal that his account may initially have can be refuted easily, for he is in fact just taking things as they actually are and concluding that they must be so because we have a disposition to interpret them in that way.[42] This kind of account collapses immediately if we acknowledge that the way the world is is a contingent matter. Just consider what this implies: if we had the same innate dispositions, but the world were totally different, our experiences would be quite messy indeed: all sorts of strange things would seem to happen all the time, and science as we know it would not be possible. The chance of the world being similar with the innate dispositions that we have seems quite remote, yet here we are, witnessing breakthroughs in science one after another. But that is enough science fiction, the moral should be clear: our experiences are what they are because of how the world is, not because we are disposed to interpret them in a certain way. This does tell us something about our abilities, but it is nothing restrictive, on the contrary, for what it tells us is that we seem to be able to get correct information about the world, to understand the identity-conditions of different objects as they are in the world.

Much of what I have said above applies also to Hirsch's discussion about what he calls 'the division problem', the problem of grounding the normative intuitions that we have about the way that our language divides up reality, as discussed in Hirsch (1993). The manner in which Hirsch proceeds is yet again from language to the world and thus a number of problems largely analogous to the ones pointed out above emerge in this connection as well. Nevertheless, we ought to see whether Hirsch's examples introduce

42 If this reminds you of Kant, it should, for the basic idea is not very different.

any new concerns.

Hirsch's primary examples concern so called 'strange languages', which divide up reality in striking, unintuitive ways. One of these strange languages is Contacti: a language which has a rather strange grasp of transtemporal identity, determined partly by contact relations of different objects (Hirsch 1993: 7 ff.). For example, Contacti includes words like 'ctable', which combines stages of what would be two different tables in ordinary language. The details are unimportant for our purposes, as in the light of the previous discussion it is quite clear where this leads: Hirsch wants to extend the relativist account of identity to individuation and to what he here calls the division problem. He tries to do this by showing that there is nothing that prevents us from accepting these strange languages. Hirsch's response to the first natural criticism goes as follows:

> One is tempted to say, for example: "It's obvious why Contacti is an unthinkably crazy language. It's simply because there are no such things as cdogs, ctables, and so on." But the assumption that there are no such things does not explain in any obvious way why it would be unreasonable or impossible to speak a language containing sentences with the specified truth-conditions of Contacti. (Hirsch 1993: 174.)

Hirsch thus concludes that ontology cannot provide an easy solution to the division problem. He does, however, consider a more sophisticated solution, which he calls the 'impossibility claim' and which roughly suggests that strange languages are necessarily inadmissible at the level of thought. Nevertheless, Hirsch is not satisfied with this solution and seems to be forced to go for the relativist solution, although reluctantly (p. 201).

Fortunately, we do not have to follow him in this, for it seems that Hirsch's understanding of ontology does not overlap with the full-blown realist ontology with which we are working with here. Hirsch has been kind enough to clarify why he considers ontology to be irrelevant for the division problem. First of all he makes a distinction between soft and hard ontology; problems of soft ontology being, if not equivalent with, then at least disposed to be verbal. These problems satisfy what Hirsch calls 'the equivalence condition', which, in short, says that for every controversial sentence within a dispute there are two sentences which are not controversial and one disputant believes that the first of these sentences is equivalent with the controversial sentence, and the other disputant believes that the second sentence is equivalent with the controversial sentence. Hirsch also adds another condition which states that each disputant's position must be consistent with what he would conclude after further observation. Furthermore, there are the problems of hard ontology, which do not necessarily satisfy the equivalence condition, a sentence like this would be for example: 'There are (such things as) numbers'. (Hirsch 1993: 180-185.)

The distinction between soft and hard ontology seems questionable, or at least Hirsch puts it in a very strange way. Presumably, what he is suggesting is that some ontological problems are just based on linguistic misunderstandings (and the division problem might be one of those). He does note that his view should not be taken to imply that the existence of individuals depends on what language people speak, or something like that (p. 190). This might sound familiar, and Hirsch indeed acknowledges that there is some overlap with his views and Carnap's and Putnam's views (p. 191).

So, it seems that Hirsch is inclined to accept that there are genuine ontological problems, which might be the ones that he calls problems of hard ontology, but granting this would appear to make it difficult to motivate the approach that he takes towards questions about identity and indeed the division problem. For his case, then, would seem to be that very often or at least in the mentioned cases ontological discussions are just arbitrary linguistic debates. However, he admits that we have strong intuitions about these things and in the case of identity even suggests that these intuitions are based on some innate dispositions. But why the mystification? Is it really so hard to admit that we might actually be successful in our rational activities; that we are inclined to interpret (and divide) the reality in certain ways because that is the way the reality *is*? Certainly, Hirsch is right about the fact that sometimes people use their words differently and this might indeed produce some unnecessary debates which are based on misunderstandings – call these debates soft if you will – but surely we can eventually spot such unintelligible discussions and clarify what we are actually talking about. What a surrealist world this would otherwise be! Thus, I conclude that Hirsch's case for relativism is a strikingly unconvincing one, even more so because he does not seem to be quite convinced by it himself. Furthermore, Hirsch's approach to the discussed problems seems to make them a lot more problematic than they actually are. For even though the answers might not be obvious even from the point of view of realist metaphysics, it is clear that we at least have some means to approach the solution; this is the only way to explain the success of our rational activities unless Hirsch's idea of innate dispositions is accepted. And, as we saw, there really is not much motivation for that.[43]

43 The two books discussed in this chapter are by no means Hirsch's only contributions to the this debate (see especially Hirsch 2002, 2005), and we will return to the topic in chapter 13, where the idea of some metaphysical debates being merely linguistic will be thoroughly examined.

5. Metaphysics and Natural Science

This chapter as well as the next two focus on the relationship between metaphysics and natural or empirical science. In this chapter I will defend the view that natural science is fundamentally dependent on metaphysics, chapter six concentrates on the details of this relationship, and in chapter seven I will examine whether it is a two-way relationship, i.e. does natural science have implications for metaphysics.

Metaphysics and natural or empirical science are generally considered to be at the opposite ends of our methods of inquiry. The obvious reason for this is that the term 'metaphysics' is usually associated with armchair philosophy, i.e. pure a priori reasoning, whereas natural science and empirical research are considered to be thoroughly in the realm of a posteriori knowledge, based on experiments. I will argue that this sharp distinction between metaphysics and natural science is groundless and misleading. This is partly because the view that metaphysics deals only in terms of a priori knowledge and that natural science deals only in terms of a posteriori knowledge is simply wrong, as we will see. However, the distinction between a priori and a posteriori knowledge as such is also problematic, as the fact that these two methods of inquiry are in a constant bootstrapping relationship has not been acknowledged.[44] But the idea that metaphysics and natural science could be continuous is of course not totally alien; as we have seen, the idea is familiar from Aristotle, and some of it survives in contemporary naturalistic accounts (e.g. David Armstrong's). The manner in which I will lay out this continuity is quite different, although, as should be clear by now,

44 The relationship between the a priori and the a posteriori will be examined in chapter eight, but I will introduce the general idea in this chapter.

Aristotelian in spirit. In this chapter the claim will be motivated by observing some examples from the history of science and from ongoing scientific debates – quantum mechanics in particular.

As is well known, metaphysics and natural science have certainly not always been quite as distinct as they might seem to be today. Consider for example Democritus, who is best known for his atomic theory. Not only was his theory a piece of remarkable philosophy, but his basic idea of an indivisible basis for all physical bodies, an atom, has survived even in modern physics. Of course, now we know that the particles that we call atoms do have an internal structure, but this does not mean that there could not be some more fundamental indivisible particles; these are what modern physics now takes quarks and leptons to be. In addition, Democritus' theory also contained a form of the principle of conservation of energy, as he considered atoms and motion to be eternal. Democritus is of course only one example, almost all the philosophers of his time could be said to have been scientists of some sort, and some of them performed experiments as well. Take Archimedes or Pythagoras, who were certainly scientists in modern terms, but also philosophers in their time. Perhaps all ancient philosopher-scientists were not very much involved with metaphysics, but the ideas of those who were no doubt influenced others as well. The best example is perhaps Aristotle, who is probably the ultimate philosopher-scientist.

All of Aristotle's scientific theses were not very accurate though - Galileo's challenge to Aristotelian physics is probably the best known example of this. Galileo's famous idea was of course that the velocity at which physical bodies fall does not depend on their

weight, contrary to what Aristotle thought. Galileo's *law of fall* states that the distance travelled by a falling body is directly proportional to the square of the time that it takes for the body to fall. He verified this result by empirical experiments, but at that point he already believed in the law. The basis had no doubt been mathematical, drawing on Archimedes, whose follower Galileo considered himself to be. Here we are interested in Galileo's method of reaching scientific hypotheses. For instance, his theory concerning acceleration was quite hard to verify empirically at the time. Galileo did eventually manage to show that falling bodies accelerate uniformly, but it was not due to his experiments that the original hypothesis was reached. So, what I am here suggesting is, quite simply, that Galileo did not just randomly test how physical bodies behave when they fall, instead he engaged in a priori reasoning and tried to figure out how they *could* possibly behave, constructed a mathematical formula for this, and then went on to test if his hypothesis corresponded with the reality, as it did.

What then, does this have to do with metaphysics? Well, it seems to me that what Galileo did was not very far from what Aristotle did. It might be that Aristotle failed to test his ideas about motion, as Galileo showed them to be incorrect (by empirical means as well), but the mistake was obviously made already in the a priori part of Aristotle's reasoning, for Galileo pointed out that there was something inconsistent in Aristotle's account. This inconsistency was revealed by Galileo's famous thought experiment in which a large and a small stone become connected in the middle of their fall: by Aristotle's reasoning, the composite stone should speed up, but he also thought that when a faster object joins a slower one, the faster will slow down, thus it follows that the composite stone should slow down as well as accelerate.

Aristotle and even Galileo did not have much empirical, a posteriori knowledge to build on and perhaps these examples are not fully comparable to the current situation because of that. But this is what Galileo struggled to change and the situation was already getting significantly better when Newton was active. Newton was in fact able to use Galileo's verified empirical results (but recall that these were a priori results before they were verified) when he came up with the hypothesis that the moon's motion in orbit could be understood by using the principles that Galileo introduced when considering projectiles, i.e. the parabolic path that a projectile forms when it falls. Newton had a thought experiment of a cannon placed on a high mountain: when the cannon ball is fired at a sufficient speed (imagine the mountain being so high that the air resistance can be ignored), we have to start considering the curvature of the earth to determine where it will fall, *if* it will fall at all. This thought experiment represents how the gravitational force of the earth could be able to hold the projectile in an earth orbit and Newton realised that this might be how the movements of the moon can be explained. What is interesting to us is the methodology of this kind of reasoning: Newton took Galileo's empirical results regarding projectiles and engaged in some a priori reasoning, with the help of which he constructed a possible explanation for certain natural phenomena. The mathematical applications of this are familiar enough, but note that all of the above was introduced before anything had actually been empirically verified.

What we have described here is in fact the method of scientific progress: we introduce hypotheses, we then test these hypotheses empirically and establish verified a posteriori results. Given these established results, we can again consider different possible explanations. This bootstrapping relationship is necessary for scientific progress. For

now, it is sufficient to think about this procedure simply as the method by which scientific knowledge accumulates. Ultimately my claim is that this is also exactly how metaphysics is done, indeed, it could be said that this *is* metaphysics. But to defend this claim, we will need a thorough account of the a priori, for the purpose is to demonstrate that scientific hypotheses (and thought experiments) are based on a priori reasoning. I will introduce the idea here very briefly, but a more detailed account will follow in chapter eight. The major challenge is to explain why, if they are based on a priori reasoning, do scientific hypothesis very often turn out not to hold?

Consider the gravitational theory and the three laws of motion introduced by Newton. Now we know, thanks to Einstein, that Newton's gravitational theory breaks down when very strong gravitational fields are in effect and similarly Newton's three laws of motion break down when velocities approach the speed of the light. Still, Newton's original ideas are evidently very nearly correct. What has happened here? The explanation is that a priori reasoning does not always produce propositions which are true in the actual world. So, strictly speaking, Newton's theory turned out not to be actual and now it would seem that Einstein's is. This is because a priori reasoning deals with possibilities. It is still *possible* that the world is structured like Newton suggested, but it turned out that the actual story is more complicated. Despite this, there is no need to say that Newton's theory was entirely *wrong*, as it quite adequately describes the world, save the special cases mentioned above.

It might be that Einstein's theory is, yet again, just another non-actual possibility which happens to correspond with the actual reality rather well, and indeed this seems to be

what quantum mechanics suggests. In either case, it is quite unlikely that we would abandon Einstein completely, even if it were to be clear that Einstein's theory fails in some contexts. Theories need not be discarded when we realise, as in Newton's case, that they apply only to limited cases. This is because the a priori reasoning behind these theories might still partly correspond with actuality, although not sufficiently for a complete description. The upshot of this is that rarely, if ever, can a theory be complete. It can certainly be a part of a complete description, but the complete description itself is in a constant state of revision, as it consists of a number of theories which are, of course, themselves revisable. This is indeed why we need philosophers and scientists to keep thinking about radically different possible explanations and interpretations which might lead to more accurate results and thus help us to approach a complete description of the world, even if can never reach it.

There have been scientific debates which illustrate both the dangers and potential of scientific thought experiments particularly well. What is remarkable about these debates is that they do not necessarily even aim to verify or falsify hypotheses by empirical means. Such was Einstein's and Niels Bohr's debate about the interpretation of quantum theory. The schism was over the Copenhagen interpretation of quantum theory, which Einstein accused of inconsistency. It is impossible to go into the details of the debate here, but essentially Einstein tried to show that the incompleteness of the Copenhagen interpretation is groundless.[45] The 'incompleteness' in this case refers to the idea that we can only demonstrate either the particle-like or wave-like properties of quantum particles at a time t, but not both simultaneously. Rather than engaging in empirical experiments, Einstein put forward a thought experiment which was supposed to show

45 The details of this debate can be found, for example, from Baggott 2004: 120 ff.

that, in principle, it is quite possible to demonstrate both the particle- and wave-like properties of quantum particles simultaneously. This led to an extensive exchange between Einstein and Bohr, in which they developed several arguments relying purely on thought experiments. After some revisions of what is now known as the Einstein-Podolsky-Rosen, or the EPR experiment, Einstein thought that he had successfully established that the Copenhagen interpretation's incompleteness caused a logical paradox when applied to this very experiment.[46] However, this time he was apparently wrong, as later on experiments concerning inequality by John Bell presented results which were in favour of the Copenhagen interpretation. Nevertheless, the debate is far from over, for the Copenhagen interpretation leaves a significant part of the story open – in fact, it is fair to say that it is not an interpretation at all. Indeed, important work concerning these matters is being done purely on a hypothetical basis, i.e. by considering different possible interpretations which are all perfectly compatible with established empirical results (cf. Whitaker 2006).

Interestingly, it is exactly quantum mechanics that has once again made the connection between natural science and metaphysics apparent in a way that would have been hard to imagine some hundred years ago. For one thing, it has made physics uncertain. Indeed, it has made physics a discipline which has to consider some wild possibilities based on nothing else than a priori reasoning. Of course, my understanding is that a priori reasoning has been a crucial part of natural science all along, but during the 200

46 The EPR thought experiment attempts to explain away the so called 'spooky action at a distance' phenomenon, that is, *quantum entanglement*: measuring, say, the spin of an electron in a quantum system which consists of two electrons travelling to different directions apparently has an immediate effect on the *other* electron in the system, although the two electrons are seemingly independent of each other and can indeed be miles apart; hence 'spooky action at a distance'. Einstein, Podolsky and Rosen explained the phenomenon by introducing so called 'hidden variables': there must be something more to reality than the standard quantum theory suggests which accounts for the strange results.

year period before quantum theory was discovered, physicists and other scientists tended to have a sense of security which they have now lost. When Heisenberg's uncertainty principle was introduced, leading physicists were suddenly debating over what we *really mean* when we talk about quantum particles such as electrons which, although still measurable, are affected by the measuring devices so that we necessarily lose some information in the process. In fact, as John Bell's experiments verified, there is something very spooky going on here indeed, for the reality of the physical properties of photons which the experiment concern seem not to be even established before a measurement is made. It is not hard to see that this shakes the very grounds of a discipline such as physics which is traditionally considered to be purely experimental, its task being simply the observation of the phenomena of the physical world. If the reality of some of these phenomena is only established *after* the experiment, it makes the traditional conception of physics simply impossible. However, it seems to me that this has only revealed the true nature of natural science: it is inevitably tied to metaphysics. This is evident when physicists try to explain these strange results, as suggestions such as the string theory seem to be almost completely beyond the scope of empirical research.

All this makes the suggested pattern of acquiring scientific knowledge apparent in an undeniable way. Here is yet another example: many of the particles which are now considered elementary were predicted by a priori means long before their existence could be empirically verified, one of them was the quark with the peculiar name 'charm'. It is revealing that the people who predicted the quark charm and other elementary particles were awarded the Nobel prize (1979) before the existence of these particles

was empirically verified (Baggott 2004: 54). Perhaps even we philosophers have some hope of being awarded this distinguished prize, as apparently it may be awarded for outstanding a priori reasoning! Be that as it may, it is clear that right now, natural science is more in need of metaphysics than perhaps ever before, as sometimes metaphysical a priori reasoning is all we have.

In the light of these examples, we can make a couple of important conclusions about the relationship between metaphysics and natural science. Firstly, the involvement of metaphysics in natural science is associated with the progress of science, with the method of reaching new theories, not so much with basic research which tends to form the empirical part, i.e. the a posteriori basis and verification of the a priori results. Secondly, the interpretation and meaning of scientific theories is also a question for metaphysics. This has been quite apparent since the introduction of quantum theory.

A possible objection to this picture might be suggested by those who would be content just with describing the world and limiting interpretation to a consistent mathematical scheme which perhaps describes the limits of what is measurable.[47] But if we were content with this, it would, so it seems to me, mean the end of progress in science. For did we not just see that considering different possibilities is crucial for scientific progress? It thus seems that an intellectually honest scientist, not to mention a philosopher, should boldly dwell on considerations of this sort and 'stretch' the limits of what is possible, to see if there are alternative interpretations to be found. This also means that there is a genuine need for cooperation between philosophers and scientists. If the picture of the involvement of a priori reasoning in coming up with different

47 This is how Heisenberg supposedly saw his principle of uncertainty (cf. Baggott 2004: 38).

possible scientific interpretations is correct, then natural science and metaphysics seem to have an important methodological connection. Accordingly, it would perhaps be useful if philosophers were aware of what is happening in natural science, especially on the cutting edge of the theoretical branch, as that is where most of the work in a priori reasoning is done. On the other hand, it would be wise for the theoretical scientists to consult philosophers every once in a while, as they are certainly most experienced in the kind of reasoning that the theoretical scientists need.

A number of further issues require our attention. In the next chapter we will look at the process of coming up with different possible scientific interpretations in more detail – thought experiments seem to play an important role here. I will discuss some recent literature both in favour and against the view sketched here. In the following chapter I will suggest that the relationship between metaphysics and natural science works both ways, i.e. science has implications for metaphysics. Furthermore, the exact role of a priori reasoning in this picture has to be settled.[48] We will see that some fundamental changes in our conception of the a priori are needed. Nevertheless, I hope to have already established that progress in natural science requires reasoning that appears distinctively philosophical. In what follows I aim to demonstrate just how crucial this is.

48 Chapter eight is concerned with the nature of the a priori.

6. The Methodology of Thought Experiments

Thought experiments are perhaps the most obvious example of shared ground between natural science and philosophy. In the previous chapter I suggested that scientific thought experiments, and in fact not just thought experiments but also hypotheses and theory-forming in general, rely on a priori reasoning, which points towards a continuity with metaphysical reasoning – the traditional domain of the a priori. However, this certainly needs further grounding and even if my view is correct, there is still the question of the exact methodology of thought experiments, i.e. how does a priori reasoning work in this connection. My account is that the a priori deals with possibilities, in other words, thought experiments, which rely on a priori reasoning, are inquiries into the different possible states of affairs which are compatible with a given set of pre-conditions. This is, of course, just the start, as the introduction of a modal operator leads us to another discussion.[49] I will try to give an accurate description of what I believe is going on here, but I should start by putting forward a stronger case for the continuity between scientific and philosophical thought experiments.

The view that scientific and philosophical thought experiments are indeed similar is rather popular, at least among philosophers. There are some serious objections though and I shall consider one of them, put forward by David Atkinson. Atkinson's (2003) main point is that thought experiments which do not lead to real, empirical experiments, are not as valuable as the ones that do. While this does not directly question the view that I have put forward, its implications are rather problematic, for Atkinson would seem to suggest that philosophical thought experiments are of less value, as they hardly

49 The analysis of modality in this picture will be postponed until chapter nine.

ever lead to empirical experiments. This is in fact what Atkinson suggests in another connection with Jeanne Peijnenburg (Atkinson and Peijnenburg 2003). What makes Atkinson's approach interesting is that he does not consider only philosophical thought experiments to be poor ones, but also a number of scientific thought experiments, such as Galileo's thought experiment about falling bodies in response to Aristotle's view (Atkinson 2003). The fault in Galileo's thought experiment is that, according to Atkinson, there is nothing inconsistent in Aristotle's original idea, contrary to what Galileo claimed: Aristotle's idea that the time that it takes for a body to fall is inversely proportional to its weight *does* hold, when the body is falling in a fluid, such as water. So, Atkinson suggests that Galileo perhaps misread Aristotle and, moreover, presented his thought experiment of the imagined inconsistency as a polemical device.

I wish to take no stand on this matter here, but it should certainly be acknowledged that even if Aristotle's reasoning was consistent, his account of motion is nevertheless unsatisfactory. Furthermore, this hardly tells us anything about the actual process by which Galileo reached his conclusion about falling bodies, which is correct, albeit in a restricted framework (as is Newtonian mechanics). Thus, even though Galileo's thought experiment, as we know it, might not quite do what Galileo thought it did, namely point out a clear inconsistency in Aristotle's original idea, it nevertheless is an accurate description of an idealised situation, of a possibility. It is revealing that the same is true about Newtonian mechanics, which breaks down in special cases. Consequently, I find it quite puzzling that Atkinson grounds his case by pointing out certain special circumstances in which Galileo's theory does not hold, and concludes that his thought experiment must be a bad one. Certainly, it could have been a better one, but if it

successfully describes at least *some* states of affairs in the world and if it even remotely illustrates the process of reasoning that Galileo went through when forming his theory, it is indeed a fine thought experiment.

The discussion above gives us some idea of how to deal with thought experiments. I think that it is a mistake to judge their value merely in terms of what kind of empirical experiments they might lead to. Atkinson clearly thinks that there is not much more to thought experiments than that, and this is why he thinks that the Einstein-Podolsky-Rosen (EPR) thought experiment, which we discussed in the previous chapter, was a good one; not because its conclusion was correct (because it was not), but because it later led to a real experiment by John Bell, which in fact corroborated the Copenhagen interpretation of quantum theory, contrary to the purpose of the EPR thought experiment. In a similar fashion, Atkinson (2003) claims that the string theory is an example of a *bad* thought experiment: it seems that we can never have access to the energy required to test it empirically, hence it will not lead to empirical experiments. To understand Atkinson's motives, we need to look at the two indicators, which, according to him and Jeanne Peijnenburg (Peijnenburg and Atkinson 2003), reveal when a thought experiment is a bad one.

The two indicators are contradictory conclusions and conclusions which beg the question. As an example of the first one, Peijnenburg and Atkinson mention the *Doppelgänger* thought experiment which produced a heated debate in the philosophy of mind; the question being of course whether your physical duplicate can be mentally identical to you. The *Doppelgänger* thought experiment is supposed to offer an example

of a conclusion which begs the question as well, for Peijnenburg and Atkinson claim that the contradictory conclusions are caused by question-begging premises: the thought experiment is meant to explain our intuitions about the mental and the physical, but these intuitions are also the cause of the contradictory conclusions.

While I am not entirely sure that the *Doppelgänger* thought experiment really does serve its purpose, I am quite positive that the criterion of good and bad thought experiments introduced here is not satisfactory. The problem seems to be this: Peijnenburg and Atkinson take thought experiments simply as pragmatic tools towards empirical experiments. However, it is clear that this is not how they are used and it certainly gives us a wrong idea about the methodology behind them. Take for example the EPR thought experiment, which, apparently, did not correspond with reality, although it produced a real experiment (although quite a bit after the actual thought experiment was introduced). It seems thus that the EPR thought experiment was good only because of the contingent fact that John Bell happened to find a way to test it empirically (after David Bohm did some additional a priori work with it). And this is even though it obviously falls into the category of bad thought experiments by the criteria just provided: the EPR thought experiment *did* produce contradictory conclusions and certainly begged the question given Peijnenburg's and Atkinson's understanding of question-begging.

Certainly, there are thought experiments which are bad ones because they clearly beg the question. Some of the thought experiments familiar from philosophy of mind no doubt fall into this group. However, I would be inclined to say that in fact these are not

thought experiments at all, because they violate one rather simple requirement that I would consider necessary for thought experiments. This requirement is that thought experiments must be closed in terms of their pre-conditions: the initial set of empirical pre-conditions has to be sufficient for the scope of the thought experiment (i.e. nothing that might be relevant for the thought experiment may be ruled out), on pain of begging the question. This is perhaps also the closest thing to a definition of a thought experiment that we can have. It is often the case with thought experiments in philosophy of mind that the empirical grounds are shaky at best. For one thing, the popular thought experiments about zombies (see Chalmers 1996) fail to take into account whether it is even physically possible to have an exact duplicate of a person walking around, but perhaps with different phenomenological properties. In other words, the information on which thought experiments like this rely on is insufficient and thus they fail to satisfy the requirement of closed pre-conditions, which is crucial for successful thought experiments.

Let us go back to the problems in Peijnenburg's and Atkinson's view. They define the value of thought experiments in terms of the empirical experiments that follow from them. But how are we supposed to know when we can decide on the value of a thought experiment, if there can be empirical experiments that follow from it much later, as in the case of the EPR thought experiment? How do we know that something like this will not happen with string theory, or indeed any thought experiment that might initially seem 'bad'? This is a concern that Daniel Cohnitz (2006) has also put forward in his comment on Peijnenburg's and Atkinson's paper. It is also somewhat suspicious that Peijnenburg and Atkinson refuse to define what a thought experiment is:

> Since we are preoccupied with the difference between good and bad, we do not feel the need to state exactly what thought experiments are; after all one can distinguish good from bad theories, or thoughts, or experiments without being able to define what exactly theories, thoughts or experiments are. (Peijnenburg and Atkinson 2003.)

Well, at least it seems that my claim for the continuity between scientific and philosophical thought experiments cannot be questioned by Peijnenburg and Atkinson. Nevertheless, we need to look for a more satisfactory criterion of judging when thought experiments actually are bad and when they are good. In my view, this is indeed very closely connected to what thought experiments are. I suggested above that a minimal condition for a successful thought experiment is that the pre-conditions of the thought experiment are closed. I have also pointed out that I consider thought experiments to be based on a priori reasoning and this, together with the set of closed pre-conditions, is exactly what gives us a criterion to judge the value of the thought experiment: as long as the a priori work associated with the thought experiment is logically consistent and coherent in regard to the closed pre-conditions, the thought experiment is a good one. What needs to be emphasised, however, is that even if this criterion is fulfilled, it does not mean that the thought experiment corresponds with actual reality, i.e. thought experiments by themselves are not a reliable guide to how things are in the actual world. To put this in terms of an example, recall the EPR thought experiment again, which, although logically consistent, turned out not to correspond with actual reality after Bell's experiments.

Naturally, thought experiments which do not correspond with the actual world might not be very interesting, at least not for experimental scientists, but as long as the state of

affairs described in them is coherent and does not conflict with the established a posteriori framework, we cannot really claim that the thought experiment is a bad one. Indeed, the whole point of the thought experiment is to come up with a *possible* scenario. Whether this scenario is true has to be settled by other means. So, many thought experiments turn out not to be true, where truth is considered in terms of the actual world, but if they are consistent, they nevertheless describe *possible* states of affairs. What's more, even if we have a thought experiment which *does* correspond with actuality, it often means just that it corresponds with a certain restricted framework of actuality. In the light of Atkinson's discussion, this seems to be the case with Galileo, but it is also the case with Newton's mechanics and a great number of other thought experiments and theories. The explanation for this is simple: only a theory of everything could sufficiently take into account all the local variations in the world. However, most of the time it is quite clear what the area of applicability is, as in the case of Newton's versus Einstein's mechanics. Incidentally, one of Atkinson's (2003) examples of a bad thought experiment, the string theory, is something like a theory of everything. I will not try to settle whether string theory is in fact logically consistent and coherent with what we already know, but provided that it is, it seems that it is a good thought experiment in terms of my criteria.

We now have a rough idea about the methodology of though experiments, but a number of details remain to be settled. Firstly, I will not be giving a description about the psychological processes associated with thought experiments. While it is an interesting topic and certainly worth pursuing, I believe that it is partly a question of psychology and partly of philosophy of mind, both of them beyond the scope of the discussion at

hand.[50] But we can certainly say something here. It seems that we do have the ability to reach information about how the world might be. However, this information does not always correspond with how the world actually is, although it certainly sometimes does. We have also seen that even the thought experiments which turned out not to correspond with actual reality can be logically consistent and coherent in regard to the established framework of a posteriori information. What, then, explains the fact that sometimes we successfully reach information about the actual state of affairs, but sometimes, even when the methodology of reasoning is exactly the same and all preconditions have been taken into account, we come into a conclusion that does not correspond with actuality? Well, the reason for this appears to be simply that there are several possible ways that the world might be, all of which are logically consistent and coherent in regard to what we already know. However, this is no cause for despair, as we also know that one of these possible ways that the world might be *must* be actual.

What delimits the range of thought experiments (at least useful ones) is logical consistency-*cum*-the established a posteriori framework. It is important to note here that the established a posteriori framework does not consist just of empirical information, it consists of everything we know, including the a priori results that have been verified earlier.[51] Thus, we already have some important information which radically delimits the vast range of possibilities at hand – these are the preconditions of feasible thought experiments. So, this limited albeit still quite broad range of possible states of affairs is the area where thought experiments, and a priori reasoning, operate. If a thought

50 I advise to consult Roy Sorensen (1992: ch. 4) for an overview of possible accounts in this regard.

51 Be it noted that the fallibility of empirical research is hardly a problem here, as empirical science is a self-correcting discipline and the a posteriori framework can be revised accordingly. However, this does mean that sometimes a priori results which violate the established a posteriori framework are in fact correct, indeed, this is usually what points out the need for revision in the first place.

experiment suggests something that falls outside this area, then it is indeed an example of a bad thought experiment, as it is either logically inconsistent or fails to take the established pre-conditions into account.

How, then, do we acquire information about the possible states of affairs? I have already suggested that this is done with the help of a priori reasoning, but what does this exactly mean? It is not an unusual suggestion that this has something to do with conceivability. The relationship between possibility and conceivability can of course be either, neither, or both of the following: 'what is possible, is conceivable' and 'what is conceivable, is possible'. The second of these is the one of interest to us, but I do not wish to endorse it. We can immediately see that something which violates the conditions that I have just put forward might very well be conceivable, as it is easy to conceive of something that is not coherent in terms of the established a posteriori framework. There are certainly a number of other problems associated with conceivability, but I will not try to give an exhaustive account here.[52] Let it just be said that if conceivability is interpreted as something that can be imagined, it is certainly far too loose for our purposes. I am inclined to agree with Sorensen, who suggests that the connection between conceivability and possibility is only a statistical overlap (Sorensen 1992: 41).

If conceivability is out of the question, what are our options? An appeal to conceptualism of some sort might be tried, and often is. This is of course the approach that Frank Jackson (1998) takes; we already considered his views in chapter three. Jackson's account seems to be that only philosophical thought experiments, such as Putnam's Twin Earth thought experiments, could be dealt with in terms of a

52 For it is the task of chapter nine.

conceptualist framework (Jackson 1998: 78-79). The question is: what does he think about scientific thought experiments? Well, Jackson describes Galileo's thought experiment concerning falling bodies and draws the following conclusion:

> We should not be too surprised at thought experiments revealing facts about the empirical world. Detective stories make us familiar with the idea that reconstructing 'in our minds' what would have been involved in the butler doing it may reveal that he could not have done it. This is surely very different from the Twin Earth thought experiments. They do not lead us to revise our views about what Earth is like, or indeed what Twin Earth is fundamentally like. (Jackson 1998: 78-79.)

I will not discuss the Twin Earth thought experiments here. Instead, I wish to ask how is it possible that Jackson considers scientific thought experiments to be any less problematic than philosophical ones. It is obvious, from what he is saying, that there is some kind of a modality at work here, and apparently we reach it with the help of a priori reasoning, 'in our minds', as it were. But why should we not be surprised about this, does it not raise the very same question that we have been concerned with? I take it that Jackson is not applying the conceptualist scheme to scientific thought experiments, as this would certainly require a more extensive account than he has given us. Moreover, Jackson himself has put forward a number of thought experiments, the classification of which is somewhat problematic. The best known of these is the example of Mary, the colour scientist who is confined to a black-and-white-room and learns everything about colour from books (Jackson 1986). The question is, does Mary learn anything new when she actually sees a new colour, say, red? The argument is supposed to show that physicalism is false, but we are here only interested in how to classify it.

According to Peijnenburg and Atkinson (2003), the case of Mary is an example of a bad thought experiment, comparable to the Twin Earth thought experiments. However, according to Jackson's criteria, it would seem that it is closer to a scientific thought experiment, as supposedly it shows that physicalism is false, and thus tells us something about the empirical world – an indicator of a scientific thought experiment in Jackson's terms. What makes the situation even more complicated is that Sorensen considers the Mary thought experiment to be a counterexample to the view that thought experiments are appeals to ordinary language, which seems to be more or less what would follow from Jackson's conceptualist interpretation of the Twin Earth thought experiments (Sorensen 1992: 94).

We should pause for a while and see what is going on here. Obviously, something is not right. It seems to me that the cause of these inconsistent accounts is the attempt to separate scientific and philosophical thought experiments, or the attempt to explain some of them away as appeals to ordinary language, as Jackson tries to do with the Twin Earth thought experiments, or simply to dismiss some thought experiments as bad, as Atkinson does with both the Twin Earth thought experiments and Jackson's Mary thought experiment. But as I have been emphasizing all along, the methodology behind all of these thought experiments is the same. They all make modal commitments, they are all based on a priori reasoning.[53] What remains to be done, is to see what in fact grounds these modal commitments.

In my view, the most plausible explanation is that the modal commitments are grounded

53 The claim that thought experiments are based on a priori reasoning is perhaps contentious. I will motivate this claim in chapter eight, but see also Sorensen (1992: 14-15) for discussion.

in the way the world is. In other words, there has to be something in the world which governs our modally loaded thought experiments. When I earlier emphasised that the established a posteriori framework does not only include purely empirical information, I meant just this: we already have some information about how the world can potentially be like; the framework is certainly not modally innocent. I will elaborate this in due course, but I hope that enough has been said to establish that thought experiments are relevant both for science and philosophy, and that their methodology is similar in both cases.

So, what I have suggested is that by engaging in a priori reasoning we delimit the scope of the possible with the help of the established a posteriori framework. The details of this process will be discussed in later chapters, but it would appear that we have good reasons to think that both philosophical and scientific thought experiments express synthetic a priori propositions: as we saw, the conceptualist line that Jackson has suggested is unsatisfactory, but so is Atkinson's line which attempts to reduce the value of thought experiments to empirical testability. Insofar as thought experiments do provide new information, it must be 'independent of experience'. This is relative though: we always have a certain established a posteriori framework, which naturally works as our starting point. Once new results are established, they will be integrated into the very same framework. This process is repeated over and over again; it suggests that a posteriori and a priori knowledge are in a constant *bootstrapping relationship*.[54]

Finally, it is rather meaningless to argue whether thought experiments which fall within the criteria I have presented are philosophical or scientific. Empirical testability clearly

54 The details of this relationship will be discussed in chapter eight.

does not help in determining this, as there are thought experiments which have been tested empirically in both disciplines, as well as thought experiments which have not been, or perhaps even cannot be tested empirically. Thought experiments rely on our a priori capabilities in order to determine how the world might be; what is distinct about this process is the modal content of the scenario, which will be analysed in detail later. In conclusion, it could be said that *all* thought experiments are philosophical, as generally a method of inquiry that applies a priori reasoning is surely a philosophical one.

7. The Relevance of Science to Metaphysics

In the previous chapters I have argued that natural science is closely tied to metaphysics and that scientific thought experiments employ our a priori capabilities – a kind of inquiry that generally characterises metaphysics. The question at hand now is whether this is a two-way relationship, i.e. what, if any, is the relevance of science to philosophy and especially metaphysics? It should be clear that the conception of metaphysics that I have been defending does indeed have something to do with science, for I have abandoned the view that metaphysics is just armchair philosophy and nothing more. Moreover, I believe that the two are connected in much the same way that a priori and a posteriori knowledge are connected: in a manner of a *bootstrapping relationship*, an idea which very briefly I introduced in the previous chapter. However, it is worthwhile to consider how, exactly, science affects philosophical theories, and just how important this connection is.

It might seem that a view which connects philosophy and science in the way that I have suggested resembles what some philosophers call naturalism. While I find that much of the discussion about naturalism defines it in a way that has nothing to do with the view that I have been defending, it nevertheless seems that on some level the name might not be so misleading. At the very least, Aristotle is sometimes considered to be one of the first naturalists and in this sense naturalism does indeed come very close to how I would like to characterise my view. However, Quine is often considered to be one of the modern adherents of naturalism, but I think that his critical form of naturalism, which is, at least in principle, very hostile towards metaphysics, could rather be called

scienticism, as it occasionally is. Furthermore, David Armstrong has been defending a rather different version of naturalism, but his views are again much closer to the type of naturalism that I might support. Judging from these radically different ways to use the term 'naturalism', I believe that it is best to abstain from its use in this connection. Nevertheless, if someone wants to describe the type of view that I am defending as naturalistic, it would be important to emphasise that nothing about it implies that science could do the work of philosophy, only that there is an important connection between the two.

To get into a little more detail about what exactly is going on between natural science and philosophy – in that particular order – we need to distinguish a rather obvious general effect from science to philosophy, which is indirect, and more specialised cases, which are perhaps relevant just in terms of one single theory, but quite directly. The general effect that science necessarily has to the whole of philosophy, including metaphysics, is of course the a posteriori framework that established scientific results create. This is usually such an obvious restriction that it goes without saying. Although every once in a while this framework itself goes through such a radical change that it immediately affects philosophy in a clear and important way. History is full of examples like this: the change from geocentric to heliocentric understanding of our solar system, finding out that Euclidean geometry breaks down at a certain level, the relativity of space and time, and last but not least, results concerning the miraculous world of quantum mechanics. All of these radical changes to the established scientific framework caused immediate response in the work of philosophers. But now, when we have learned to live with these changes (although it is at least arguable that we have not, and

perhaps never will quite learn to live with the odd results of quantum mechanics), the effect that they have is mostly in the background, an obvious precondition. To appreciate just how far these preconditions reach, consider Thales and other ancient philosophers who were trying to figure out what is the basic element of the world. According to Thales, the basic element, *arche*, was water. No sane modern philosopher would suggest anything like this. Why? Because it conflicts with the established scientific framework: water is a compound and it has a number of internal, more fundamental constituents; as, of course, do atoms.

The general effect of the established scientific framework is massive and cannot be denied, but the direct, specialised effects that natural science sometimes has on philosophical theories are perhaps more illustrative. Again, historical cases are numerous, but modern examples might serve our purpose better. Some of the most obvious examples are of course from such areas as philosophy of physics, philosophy of biology and philosophy of chemistry, but it could be argued that within these areas of philosophy, the effect from philosophy to science is more important than the effect from science to philosophy, as they mostly focus on the methodology, ethics and interpretation of the associated scientific theories. Obviously these areas of philosophy are in direct connection with natural sciences, but as the purpose of the research is to map the philosophical aspects of these specific sciences in the first place, more general philosophical ramifications will be very limited.

The kind of link that we are looking for might thus be clearer in some other areas of philosophy, such as the philosophy of mind. This is indeed an area of philosophy which

is strongly influenced by the latest results in psychology and neuroscience. Note, however, that this tendency is very recent, starting seriously perhaps from Patricia Churchland (1986). The functionalism put forward by Putnam that was predominant earlier did not effectively take advantage of the latest results in the related sciences. Also, although prominent philosophers working in the area, such as David Chalmers, are no doubt quite familiar with the associated scientific background, their arguments rarely take full advantage of this background. For instance, Chalmers is primarily interested in arguments concerning the so called explanatory gap between consciousness and brain processes (cf. Chalmers 1996), not so much with the many arguments from, say, neuroscience.[55] So, although science certainly has an important effect on the philosophy of mind, even this effect is perhaps not quite as evident as one might hope. Be that as it may, there is no doubt a certain limit to the help that science can offer to the problems in the philosophy of mind, as we are certainly nowhere near a completed neuroscience.[56]

Could it be then that it is metaphysics which provides the most interesting cases of the effects from science to philosophy? This might seem unlikely as, quite generally, metaphysics is regarded as the area of philosophy which is perhaps the furthest away from science. And of course we must acknowledge that not many metaphysicians extensively discuss the scientific background of their metaphysical theories, not directly anyway. Still, it is clear that some metaphysicians, for example David Armstrong, think that there is a very clear way in which metaphysics is connected with science. This is apparent, for example, in the view that Armstrong (1978, 1989) takes in regard to

55 See Bickle et al. (2006) for an extensive discussion about neuroscience's influence on the philosophy of mind.

56 And, arguably, even a completed neuroscience would not settle the issue.

universals; a view which he calls 'scientific realism'. The idea is that it is largely, if not entirely, the work of science to determine what the actual universals are, what kind of properties things actually have, and in what kind of relations they stand to each other. This is a very Aristotelian view and it is undeniably a view which emphasises the important connection between science and metaphysics. Note that one important implication of this view is that these matters – the true properties and relations in the world – are subject to the falsifiability and revisability of science. This suggests that the true relations could only be fixed by a finalised science; although in fact we of course have to rely on 'the best science'. The effect of science understood in this way is also a very direct one: the properties and relations that we – or physicists – observe in the world directly tell us something about the ontological structure of the world. But, let it be noted again, this connection between science and metaphysics does not undermine metaphysics in any way, for it is the job of metaphysics to make sense of these results. And quite a job it will be, as during the last 100 years the results have been increasingly disturbing.

The question that emerges is how, exactly, science is supposed to give us hints about the ontological structure of the world? Well, it seems almost as if scientists are working on different sub-branches of metaphysics: trying to determine what kinds of properties certain entities have, and what sorts of relations hold between these entities. Consider quantum mechanics. What are we supposed to conclude from the information that, when we make a measurement on a correlated pair of photons, it seems that they are able to exchange information at thousands or millions of times the speed of light, as John Bell's inequality theorem suggests (Baggott 2004: 153 ff.)? Frankly, how are people without

extensive training in theoretical physics supposed make any sense of quantum mechanics, which nevertheless seems to be 'the best science'? I believe that the situation is not quite as worrying as it might perhaps seem, although it would indeed appear that it is very crucial that philosophers have at least a minimal understanding of what goes on in 'the best science'. Still, given the pace at which the established scientific framework is expanding, it is quite impossible for anyone to be aware of all that is going on. But this is just where cooperation comes into the picture: we should rely on the help of our colleagues in the empirical disciplines. Currently, the amount of such cooperation is negligible, but it seems obvious that if a project such as David Armstrong's is to be pursued, cooperation between philosophers and scientists is unavoidable. The move which Armstrong makes, and which I think we should make, should not be considered as an end of discussion, but rather as the start of it.

Now, let us take a genuine example from quantum mechanics and try to see how it could really be used when we engage in metaphysical reasoning. We know for a fact that there is something strange going on between the correlated pair of photons mentioned above. This strangeness is apparent when we would like to make two measurements on the photons, as when we make a measurement on the first photon, we somehow manage to disturb both of the photons, even if they are miles away from each other (Baggott 2004: 170).[57] This result suggests that there is some kind of a peculiar relationship between the two photons, yet to be explained. I think that any

57 The measurement disturbs the photon because the measuring device interacts with it, as demonstrated by Heisenberg's uncertainty principle. This is why we have two correlated photons in the first place: we hope to be able to make two measurements on the first one by making the second measurement on the second photon, which we have not disturbed yet. Thus we could make a second measurement on the first photon, *as if we had not disturbed it*. But, alas, somehow the information of the first measurement seems to reach the second photon, although there are no feasible ways for that information to reach it in time.

metaphysician should be thrilled about results like this. For it seems to me that the results in quantum mechanics have not only broken down classical mechanics, but also a great deal of classical metaphysics. This is because there is a direct relationship between these two as well. Thus, quantum mechanics might require that we revise our metaphysical theories. We need to ask: what kind of relation could be responsible for the strange, instantaneous action that takes place between the two photons? This is of course, again, largely, if not completely, an empirical matter, and it might be hard to say much about the relation before we have more empirical information, but surely any metaphysical account has to take into consideration that there seems to be some strange relation in the world that does not fit into the classical view. In other words, this adds to the prerequisites that philosophers have to take into account. Just how one does this is a matter of the details of the theory in question.[58]

It might be argued that, interesting as they are, results in quantum mechanics do not necessarily require any revisions in our metaphysical theories. It could be said that they are merely a part of the empirical framework which defines the actual relations and properties in the world and demand no changes in our metaphysical framework. Something like this is true of the empirical results which in fact do fit in the metaphysical framework: the finding that water is H_2O, or even that it is XYZ, does not require a change in our metaphysical framework because we have a clear conception of how it fits into the ontological structure of the world. Of course, it is debatable what this ontological structure actually is, but the point here is that whatever our theory about it

58 Admittedly, although issues in quantum mechanics are anything but settled, and it might yet turn out that there is realist interpretation of these strange results (cf. Einstein, David Bohm), one compatible with classical mechanics and thus not of drastic consequences to metaphysics either. Be that as it may, we should keep a very close eye on these results.

is, it has to be able to accommodate the fact that water molecules have a certain internal structure and the atoms which water molecules consist of have certain relations with each other. The upshot of this is that no matter what the details of your metaphysical theory are, it is certainly one of its prerequisites that it is compatible with these empirical results. Because of this, your theory is naturally compatible with all the empirical results that fit into the similar framework (given that you are aware of these results). However, for an ancient philosopher like Thales, the results about water would have been utterly incredible and his conception that water is the *arche* would have needed some serious revision indeed. Now, what makes the case of quantum mechanics so striking is that it is to us as the finding that water is H_2O would have been to Thales. The results in quantum mechanics *do not* fit in the established framework; the relations and properties introduced by it are completely different from the ones that are in effect in the case of water. Of course, in fact, water molecules have a quantum structure as well, so now we also need to explain how that structure can produce the properties and relations that we observe at the macro-level.

Perhaps it seems rather hopeless to somehow take into account all these strange results. But in fact the situation is not very much different from the ones that I described earlier: the change from geocentric to heliocentric understanding of our solar system, finding out that Euclidean geometry breaks down at a certain level, and the relativity of space and time. All of these distinctly empirical results must have seemed incredible, and equally impossible to take into account in philosophical theories which were designed under such a misguided conception of what the reality is like. But we have nevertheless managed to accommodate all these results to our theories. Thus, it seems to me that

what we have here is nothing more than a continuing relationship between philosophy and natural science, a two-way relationship. Radical empirical results will always require considerable revisions to our metaphysical theories, just as they always have, but there are no reasons to think that we could not cope with this.

8. Metaphysics and the A Priori

In the last three chapters I examined the relationship between metaphysics and science. It should now be obvious that I believe a priori reasoning to have a central role in characterising this relationship. I have already mentioned some of the most important aspects of my understanding of the a priori in passing, but in this chapter it is the main focus. It will not come as a surprise that the conception of the a priori that I am about to put forward is not quite conventional. In fact, the novel definition of the a priori that I will offer is one of the key features of my argument for the necessity of metaphysics. The primary purpose of this chapter is to describe the role of the a priori in regard to metaphysics, but it will become apparent that it has an undeniable role in all of our rational activities.[59]

Characterisations of the a priori usually start with the idea that a proposition is knowable a priori if it is knowable independently of experience. However, to what degree *can* anything be known independently of experience? What is the relationship between established a posteriori knowledge and a priori knowledge? And further, are there any synthetic a priori truths, or, more neutrally, non-analytic a priori truths? I suppose that the most popular view today is that all a priori truths are analytic and that a priori reasoning is some sort of conceptual analysis.[60] But the alternative view, namely that some and indeed the most interesting kind of a priori truths are not analytic, is not unheard of. It does certainly seem that if there are non-analytic a priori truths, they are the most interesting sort. Here I am interested in the a priori exactly in this sense. I will

59 This chapter is largely based on my (2008).
60 Recall our discussion of Frank Jackson's views in chapter three.

suggest that the (non-analytic) a priori, rather than being strictly independent of experience, is always one step beyond experience. To be able to reach this step, we must have an a posteriori framework to take us just below that next step. Furthermore, once the a priori step has been firmly verified, by a posteriori methods, it becomes a part of the established a posteriori framework. What I mean is that the a priori is in a constant bootstrapping relationship with the a posteriori, as I have indicated in previous chapters. But despite this intimate connection with the a posteriori, a priori reasoning is a distinct, crucial method of inquiry which is not reducible to the empirical.

Apart from the analytic/synthetic distinction, it needs to be settled where the a priori stands in terms of the necessary/contingent distinction. I will argue that the defining characteristic of the a priori is in fact its relationship with modality. To start with, we must acknowledge Kripke's critique: 'a priori' is not synonymous with 'necessary', and not all necessary truths are a priori. Given Kripke's compelling examples, there should be very little controversy over this matter.[61] Nevertheless, I certainly wish to maintain the link between the a priori and modality; the qualification that is needed concerns the strength of this connection, namely, apriority only implies possibility. In what follows it will be shown that it is precisely the connection with modality that helps us to answer some of the hardest questions about the a priori. For example, the question about the status of the a priori in regard to the analytic/synthetic distinction reduces to a question about the nature of the involved modality. If the modality in question is conceptual, it would appear that there is little room for non-analytic a priori truths, but if a priori knowledge concerns metaphysical modality, it seems clear that there have to be

61 Although in the course of this chapter I will point out good reasons to re-evaluate the situation altogether.

(something like) synthetic a priori truths. I will argue that the latter is true, although I do not find the analytic/synthetic distinction very informative in the first place. Finally, I will combine the two points introduced above – the bootstrapping relationship between a posteriori and a priori knowledge, and the connection between the a priori and metaphysical modality – and demonstrate that the upshot of these views is a coherent and plausible characterisation of the a priori.

Before I advance to defend my claims in detail, it will be necessary to make some clarifications. Firstly, the positive characterisation of 'a priori knowledge' suggested here states that a logically valid a priori proposition[62] always holds in at least one possible world. It is a separate issue whether it holds in the actual world, and this generally has to be determined by a posteriori means (given that we are dealing with non-analytic a priori truths). The question that remains is how we define 'a priori knowledge'; do any logically valid a priori propositions qualify, or only the ones that are true in the actual world? For the time being, let us assume the latter – we will return to the matter later.

Secondly, I hold that a priori reasoning is fallible, but also that a priori *knowledge*, understood as above, is fallible. By 'a priori reasoning' I mean the rational activity that human beings engage in when trying to reach a priori knowledge. The Cartesian conception of the a priori maintains a strong link between apriority and necessity, which naturally implies that consistent a priori reasoning provides access to necessary truths. Presumably this still leaves space for the fallibility of a priori *reasoning*, but not for the fallibility of a priori knowledge. Kripke's ideas on the matter are usually considered to

62 An 'a priori proposition' being any proposition that was reached by a priori means. The validity of the proposition simply means that the reasoning process that led to it is consistent and does not violate the laws of logic, i.e. that human error is ruled out and we have no reasons to suspect its feasibility.

have severed the link between apriority and modality completely, but these results do not imply that there is *no* connection between the a priori and modality, they only imply that a priori reasoning is not a direct guide to necessity. There might be a temptation for a deflationary account of the a priori given the usual interpretation of Kripke's results, but we can certainly put forward a more explanatory view if these results are understood correctly.[63] We have a middle way between abandoning the a priori altogether (cf. Quine 1951, but also MacBride[64]) and giving a characterisation of it which does not grasp the traditional sense at all. However, I cannot sympathise with the recent accounts of the nature of the a priori[65], for although they do make some important amendments, they tend to be guilty of the same fault that the classic debate between rationalism and empiricism is, i.e. the illusion that a priori and a posteriori knowledge are wholly separable.

Many modern accounts of the a priori, such as Laurence BonJour's (1998), do correctly acknowledge that a priori *reasoning* is fallible. There are three things to note here.

1. Human beings are fallible creatures and their rational capabilities are subject to errors.

2. Even when a valid a priori proposition is reached, it might not hold in the actual world.

3. The status of a priori propositions in the actual world is generally determined by a posteriori means, which are, of course, fallible.

63 Friedman's (2000) account, for instance, is a good attempt at this.

64 MacBride, F., 'Ontological Categories: A priori or A posteriori?', delivered at the Conference On Methodological Issues In Contemporary Metaphysics, 6-7 January 2006, Nottingham.

65 E.g. BonJour (1998), Peacocke (2000 &2004), Bealer (2000), Field (2000); I will not analyse these accounts in detail, but it will become apparent where my views differ from most recent suggestions.

The first two points concern the fallibility of a priori reasoning – how it might fail to produce a priori knowledge – whereas the third one suggests, given that a priori *knowledge* is considered to require the truth of a valid a priori proposition in the actual world, that a priori knowledge as well is fallible. This is a direct consequence of the fallibility of our (empirical) means to verify the truth of any given a priori proposition in the actual world. Accordingly, a priori reasoning can never reach absolute certainty.[66]

What about the supposed empirical indefeasibility of a priori propositions (cf. Field 2000)? Well, in the terms that I have been using, an a priori proposition that is true in the actual world, that is, a logically valid and consistent a priori proposition that counts as a priori knowledge could still be subject to falsification later. Now, it must be noted here that, given a fallibilistic picture to start with, 'truth' is not an absolute notion: the truth of an a priori proposition – unless it is necessary, in which case we will deal with it later – will always be verified by empirical means. Obviously we might have gotten the empirical story wrong and if this is the case then it would seem that the proposition is not, and never was, true in the actual world. It *will* still be true in the actual world that the proposition is true in *some* possible world, just not in this one, but this is another matter. So, it seems that due to the fallible nature of empirical information itself, there is always a possibility that further empirical information might falsify a priori propositions that were previously believed to be true. This implies that if we insist that 'a priori knowledge' refers to those a priori propositions which are true in the actual world, then a priori knowledge is indeed fallible. I must say that this result does not please me. This

66 For the time being, I will leave the case of necessary (non-analytic) a priori truths aside, but they will be discussed briefly later on. However, analytic a priori propositions are not my concern here, even though my account could easily be extended to them: classic examples of analytic a priori truths, such as 'All bachelors are unmarried', are grounded in logical modality, which, as I will argue in the next chapter, reduces to metaphysical modality. But these are trivial and relatively uninteresting examples of a priori truths.

is why I will suggest a different definition of 'a priori knowledge'. This definition must be very broad, because otherwise we could never determine when we have reached a priori knowledge. Thus, my suggestion is that *any* logically valid and consistent a priori proposition constitutes 'a priori knowledge', whether or not it is true in the actual world. When defined like this, a priori knowledge, albeit a very broad notion, is empirically indefeasible and we can avoid the problematic cases where the status of an a priori proposition in the actual world seems to change.

So, a crucial feature of my characterisation of the a priori is the distinction between a priori propositions that hold in the actual world and a priori propositions that grasp merely a non-actual possibility. This distinction is of utmost importance if a plausible characterisation of a priori knowledge is to be established. Without it, we would have no means to deal with cases where an a priori proposition that was believed to be actual is later falsified by further empirical information. The problem is that if we define apriority simply in terms of the actual world, then either the original proposition has lost its a priori status, or it was not a priori to start with. Perhaps the best known example of this is the case of Euclidean geometry, which, according to Kant, is a priori and necessary. Empirical results in favour of the general theory of relativity seem to have falsified Euclidean geometry, but it surely cannot be that the a priori status of Euclidean geometry has changed.[67] Either it was always a piece of a priori knowledge and still is or it never was. The consensus seems to be that it was not a priori in the first place, or, at least, Euclid's controversial fifth postulate[68] is not and never was a priori. The

67 In fact, this point is controversial, as non-Euclidean geometries due to the work of e.g. Lobachevsky were arguably reached by a priori means. Regardless of these details, the question of which geometry is the *actual* one remained, and this is sufficient for my purposes.

68 The fifth postulate states that if two lines intersect a third so that the sum of the interior angles on one side is less than two right angles, then the two straight lines, if extended indefinitely, must intersect on the side on which the sum of the angles is less than two right angles.

problem that we are faced with, however, is that possibly empirical information that falsifies any of Euclid's first four postulates could emerge as well, and again we would have to say that they were not a priori to start with.[69] This causes two serious complications: a priori knowledge appears to be empirically defeasible, and it seems that we can never know for certain whether we have a genuine piece of a priori knowledge at hand.

A plausible way to deal with these problems is to adopt the distinction between a priori propositions that hold in the actual world and merely possible a priori propositions (i.e. the ones that do not hold in the actual world), which I suggested above. We ought to keep in mind though that because of the fallible nature of our verification methods, the status of a priori propositions in regard to the actual world may be subject to revision in the future. Nevertheless, we can agree that once the validity of an a priori proposition is established, that is, if the proposition is logically valid and consistent, its a priori status will never change. So, what happened in the case of Euclidean geometry is that further empirical information pointed out that it does not entirely correspond with the actual world. However, this does not change the a priori status of Euclidean geometry.[70] So, if my definition of 'a priori knowledge' is accepted, then Euclidean geometry is still very much in the realm of a priori knowledge. This is a small price to pay for a coherent conception of a priori knowledge.

Now that the basis of my account has been established, we can advance to examine the first claim: a posteriori and a priori knowledge are in a constant bootstrapping

69 Or, perhaps more plausibly, geometry altogether is not a priori, but the point stands.

70 For a more detailed discussion of Euclid's postulates with at least partly similar sentiments, see BonJour (1998: Appendix).

relationship. A dramatic example of this relationship is gravitational theory. We have good records of how knowledge about gravitation has cumulated in this process.[71] Let us start from Aristotle, who reasoned that the speed of falling bodies is directly proportional to their weight, and thus, heavier bodies should accelerate faster. This appears to be an a priori proposition, but, as Galileo famously argued, two falling bodies of different weights that become connected in the middle of their fall create a paradox for Aristotle's reasoning. This is an example of the fallibility of a priori reasoning due to human error, for no doubt Aristotle believed that he was presenting an a priori proposition. Galileo, however, fared better. Having identified the faults in Aristotle's reasoning, Galileo came up with an a priori proposition of his own, later formulated as a general law for acceleration. Of course, Galileo not only formulated this a priori proposition, but also tried to determine whether it holds in the actual world, as it appeared to do.

For Newton, the level of established a posteriori results was Galileo's theory – a theory which used to be only an unverified a priori proposition, but was verified by a posteriori means. Newton tried to reason how these results could explain the movements of heavenly bodies. His familiar formula states that the gravitational force is proportional to the product of the point masses involved and inversely proportional to the square of the distance between the point masses. This a priori proposition as well seemed to correspond nicely with actuality, as Newton observed in the case of the Moon and the Earth. So, again we have an a posteriori verification for an a priori proposition. Of course, Newton's theory launched numerous attempts to deduce new a priori results

71 There is some overlap with what was said in chapter five in what follows, but now we have the full range of tools to deal with this story.

about our solar system, and many were successfully established. Among them was the predicted existence of Neptune, which was subsequently found because we knew where to look. However, to get back to the main line of a priori and a posteriori bootstrapping concerning gravitation, we need to advance to Einstein.

Eventually, it became clear that Newton's theory is unable to explain all the movements of the planets. Namely, the orbit of Mercury did not quite seem to follow Newtonian predictions. A posteriori knowledge thus pointed out the insufficiency of an a priori proposition – this is an example of the second sort of fallibility concerning a priori reasoning: Newton's a priori proposition, although valid, did not correspond with the actual world. So we needed a better one, and Einstein gave us general relativity. With the help of general relativity we were able to explain the orbit of Mercury, among quite a few other things. Empirical experiments concerning the bending of light (by the sun's gravity) soon corroborated Einstein's theory and its superiority over Newton's theory was obvious. We do not need to stop here, for combining general relativity and quantum mechanics has turned out to be very problematic. So, the current situation is that yet again we are looking for an a priori proposition which would explain quantum gravity. There are several suggestions in the air, such as the string theory, but at present we have no means to determine whether the a priori propositions of string theory hold in the actual world or are merely non-actual possibilities.

This is of course a very simplified description of the bootstrapping relationship; for instance, we are not really talking about individual a priori propositions but, rather, about a network of them. All that I am trying to establish here is that knowledge

accumulates in a manner of bootstrapping. If you have doubts about whether the reasoning involved in these scientific examples is really a priori, bear with me for a while, as I will elaborate on this. In the meanwhile, I will illustrate the process with another example: a game of chess.

Someone with good knowledge of different openings can play several moves in a chess game with only his experience of these famous openings as a guide. He can simply counter every move by the corresponding move in the opening library, which is based on previous chess games. But when the opponent makes an unexpected move, or when enough moves have been played and the opening library is of no help, even the best chess player has to start thinking about his next move. One must consider different possible move combinations as deep as possible and decide on the best one, analogously to the case of different possible scientific explanations concerning gravitation. Of course, a new 'a posteriori basis' for these considerations is established with each played move, and the cycle starts again. So, each chess move played is an example of the bootstrapping relationship between a posteriori and a priori knowledge. But do not be misled by this example. Even though a chess game mimics the bootstrapping relationship very nicely, it is clearly not a genuine example – naturally the whole idea of the game must be derived from some mathematical truths which would perhaps qualify as a priori knowledge, but these are not the concern of the player.[72] Indeed, this is an artificial example and I only use it to illustrate the phenomenon of bootstrapping. I will return to the example briefly later on.

72 If we did want a genuine chess-related example of a priori reasoning, we should perhaps look at the invention of chess. However, very little is known of it.

Perhaps the conception of the a priori suggested here does not seem very interesting, for it is beginning to look as if almost all reasoning is a priori reasoning. The upshot of my account is indeed that most scientific and certainly all philosophical reasoning fall in the scope of the a priori, but there are several reasons why this is nevertheless a very interesting understanding of the a priori. Some of these reasons will become apparent later, but we can observe a few already.

Firstly, the manner in which a priori reasoning seems to be tangled with the ever-changing a posteriori framework is a crucial insight concerning the scientific method. The process is not simply one of coming up with hypotheses and verifying them, as if the a posteriori framework was a sturdy staircase and every hypothesis is a new step on top of the others. The staircase is not immutable: any previous step might turn out to be rotten. Furthermore, we do not have a single direction that the next step can take – in fact, there are whole parallel staircases with altogether different groundings, and our next step could overlap with any of them. This ever-changing staircase is supposed to illustrate the uncertainty concerning the verification of our a priori propositions; the history of science is full of examples. The problem is that we can never know with certainty that the staircase we are building is the actual one, that is, our a priori propositions might have led us astray about what is actual. What is interesting is how we might learn to better evaluate these a priori propositions. This is not necessarily a purely empirical matter, for part of the question is which combinations of different a priori propositions are compatible – it is the task of ontology to examine this. But I am already getting ahead of myself. Before we can discuss these matters in detail, something must be said of another interesting consequence of this conception of the a

priori.

The staircase might still serve as a useful metaphor. What is interesting is the first step, or, even further, the ground below the staircase. If my understanding of the bootstrapping relationship between a priori and a posteriori knowledge is correct, there is a pressing question about where all this starts. It would appear that the staircase can only be grounded in a priori principles, as each step seems to *first* require an a priori proposition, which is then checked against experience. Well, there may be some a priori principles, such as the law of non-contradiction[73], which could serve as such fundamental principles. If there are principles like this, it would seem that they must be necessary – a common ground for all possible staircases. If this is the case, these principles are obviously of utmost importance for us, as they would tell us something about the necessary constraints on reality, not only about the actual world.

But before we get too enthusiastic, a word of caution is in order. It seems that we have no reliable method of testing whether we have indeed reached a fundamental a priori proposition or merely one of the very first steps on our staircase. Clearly, verifying the principle by empirical means only helps in terms of the actual world. This also implies that no matter how irrefutable something like the law of non-contradiction seems, we cannot simply postulate its necessity and infer that it must hold in the actual world as well – even the law of non-contradiction is subject to verification, or falsification as the case may be. Having said that, I think that we have a fairly reliable case for the validity of the law of non-contradiction in the actual world, and to my mind it is also our best

73 Or the law of *minimal* contradiction, i.e. not every statement is both true and false (cf. Putnam 1978).

candidate for a metaphysically necessary principle.[74] Consequently, as groundbreaking as necessary a priori truths would be, it is always quite risky to claim that we have found one.

So, when we engage in a priori reasoning, we take small steps on our staircase towards what could possibly follow from the already established steps. In philosophy, these steps tend to be considerably bigger than in other disciplines (and potentially more erroneous because of that). However, a priori reasoning is what philosophers are educated to do and they, if anyone, should go for the largest steps. The question that we are left with is what these different possibilities are grounded in. To answer this and other related questions, we need to examine my second point: the connection between the a priori and modality.

In the previous examples we saw that a priori reasoning appears to be concerned with possibilities. Consider the chess game again: each of the trillions and trillions of move combinations represents a different possibility, a different path that the game could take. It is by considering different possibilities that we try to determine the path that leads to victory. A chess game, though, is hardly a challenge for our rational capabilities when compared to a priori reasoning concerning reality. It is a closed system with strict rules and no exceptions. Compared to the number of different possible paths that reality might take, a chess game seems very simple. In a chess game, our reasoning relies on the rules of the system; how else could we determine the possible routes that the game might take. The question that emerges is: are there analogous 'rules' in reality, that is, constraints for the different possible routes that reality might take?

74 I will discuss the status of the law of non-contradiction in chapter 11.

It would appear that there indeed must be some constraints like this, as otherwise we would be unable to reach any results whatsoever concerning reality. However, even if there are some constraints that restrict the possible organisations of the world, the situation is a lot more complicated than the chess game, not only because the space of possibilities is so much bigger but also because we do not know, exactly, what the constraints are. Recall the distinction between actual and non-actual a priori propositions. I suggested that even if an a priori proposition is logically valid and consistent it still might not hold in the actual world. This would never happen in a chess game. If a move in a chess game is valid, it just *means* that all the rules of the game have been followed. It might not be a good move, but ontologically its status is identical with all the other valid moves. In contrast to the chess game, an a priori proposition about reality can easily fail to follow all the constraints, because we lack sufficient knowledge about them. The only criterion for the validity of an a priori proposition is that it is logically valid and consistent, i.e. it does not violate the laws of logic and any human errors in the reasoning process are ruled out. Also, as we hope to reach a priori results which *are* actual and not only possible, the proposition should also be consistent with established a posteriori results. So, we can deem an a priori proposition valid if it was reached by reliable methods – by logically valid and consistent reasoning.[75] If there are no empirical considerations that contradict the proposition, then it is also *potentially* actual.

As we saw in the story concerning gravitation, Galileo, Newton and Einstein all put forward propositions which were valid in the sense described above. However, so far, every time it has turned out that the governing conditions of reality are a lot more

75 Possibly also with the help of, say, a computer, as Kripke (1980: 35) has suggested.

complicated than we previously believed, as empirical information that conflicts suggested propositions has emerged. Generally, we could say that science is an attempt to come up with the best approximation that fits these conditions. Metaphysics, on the other hand, examines these conditions. They consist of things like relations between different kinds of entities, identity and existence conditions and other conditions based on the fundamental structure of reality. Of course, the conditions themselves are examined with the help of a priori reasoning. For the most part, such as in scientific contexts, they are presupposed, which is to say that scientists do not contemplate how the conditions work. The identity of Hesperus and Phosphorus was settled by observing the sky, not by contemplating the identity conditions between heavenly bodies. Nevertheless, a set of identity conditions was presupposed.

The role of modality in this process is now starting to emerge. It is the tool that we use to postulate different scenarios of how the governing conditions of reality might work. Consider an example that I mentioned before: the discovery of Neptune.[76] The discovery of Neptune is usually credited to Le Verrier, a French mathematician who predicted its location from calculations concerning the perturbations in Uranus' orbit. These calculations were of course based on Newton's work on the gravitational force. Quite simply, the perturbations in Uranus' orbit had to be caused by a massive body somewhere nearby. From Newton's formula for the gravitational force, we get the distance between two massive bodies, Uranus and Neptune, so we can roughly determine where Neptune must be. Here, it is Newton's theory of the gravitational force which is the most important part of the process of finding Neptune. His theory of gravitation is a scenario about how the governing conditions of reality might work in

76 The example has also been mentioned by Kripke (1980: 79n) and discussed by Hughes (2004: 95-96).

regard to massive bodies. It successfully explains *some* of the factors that affect the relations between two massive bodies; only some, because it turned out that the scenario fails in more general contexts, where the gravitational potential increases. This is where we need to switch to Einstein's scenario.

The modal basis of any given scenario about how the governing conditions of reality might work must be based on the different possible states of affairs that could explain empirical observations. In our example, Le Verrier took advantage of Newton's general theory of how massive bodies interact via gravitation and derived the most plausible case of what could explain the perturbations in Uranus' orbit. This was another massive body, Neptune, situated appropriately. It is important to see that the idea is not just to identify a priori propositions with contingent scenarios concerning the possible states of affairs. The possibility of these scenarios is of a more fundamental sort – just any scenario will not do. According to the account at hand, the modality in question is grounded in the governing conditions of reality. In this case, the relevant conditions would concern the relations between massive heavenly bodies: the essences of the entities of this particular kind. This implies that we are working with metaphysical modality.[77] This is why I have stressed that the modal basis of a priori propositions is so important, for if the modality here were epistemic or conceptual, it would reduce a priori propositions to statements which have no bearing on the actual governing conditions of reality. This cannot be, as a priori propositions clearly *do* have a bearing on these conditions.

77 My sympathies are with Kit Fine's (1994, see also Lowe 1998) account of metaphysical modality – a more detailed discussion has to be postponed until the next chapter.

A possible objection to this picture can be anticipated. One thing that Kripke has managed to convince most people about is that 'a priori' is an epistemic notion and 'necessity' is a metaphysical notion. Consequently, the connection between a priori knowledge and modality has been deemed to fail. Here I have tried to re-establish that connection in terms of possibility. I also think that Kripke's case only amounts to the conclusion that a priori truths are not always necessary or necessary truths a priori, which I of course happily admit. Ultimately, the upshot of my view is that epistemic and metaphysical issues are fundamentally connected, and it is precisely modality that upholds this connection. However, my opponent might insist that the examples concerning scientific hypotheses that we have considered are just that: examples of scientific hypotheses, not of a priori reasoning. Moreover, a devoted empiricist could argue that possibility has little to do with all this; scientific hypotheses are just well-advised guesses, which are then verified or falsified empirically. There is nothing more to the picture, just guesses and empirical research.

However, there is more to the empirical story than meets the eye. Consider an example that I already mentioned in passing: the identity of Hesperus and Phosphorus. I suggested that their identity was settled by observing the sky, by empirical means. I also said that a set of identity conditions was presupposed. What I mean is that it *could not have been discovered that Hesperus is Phosphorus* if we did not have some criterion of identity for the sortal 'planet'. For example, it must have been known that two planets cannot occupy the same place at the same time. Before we were able to settle whether Hesperus and Phosphorus are *actually* identical, we had to know that it is *possible* that they are identical.[78] Above I have argued that we need a priori reasoning to determine

78 See Lowe (1998) for an extensive explanation of why possibility precedes actuality, I will also

what is possible. And why cannot a priori reasoning be just guesswork? Well, because what is possible is determined by the identity and existence conditions of the involved entities. The 'guess' has to be based on something, and it can only be based on the natures of the involved entities. Thus, this is *not* merely to equate a priori propositions with contingent propositions, far from it. Otherwise a priori reasoning would indeed be indistinguishable from guesswork.

So, before we can settle the actuality of anything, we must already have determined its *metaphysical* possibility. Metaphysical possibility, I take it, reduces to the essences of the entities concerned, as I will argue in the next chapter. The problem with the empiricist's objection is that empirical research is committed to this very picture. Without the a priori delimitation of what is possible, we could never reach knowledge about what is actual. A priori reasoning delimits the space of metaphysical possibilities, and only after the initial delimitation has been done can we proceed to test individual a priori propositions by empirical means. This cycle emerges repeatedly, as progress from established empirical results to new information again requires a delimitation of different metaphysically possible states of affairs which are compatible with the current results. Here we have a method by which knowledge slowly but surely accumulates, even though we can never reach absolute certainty.

I am now in a position to define the a priori with a single phrase: the a priori concerns different metaphysically possible configurations of the governing conditions of reality. Already in the beginning of this chapter I suggested that we should define a priori knowledge in the broad sense, that is, all knowledge concerning the different

elaborate the idea in the next chapter.

metaphysically possible configurations of the reality is a priori knowledge, even though only one of these configurations is actual. However, given the difficulty of the task of determining which configuration *is* the actual one, we are better off with a broad definition of a priori knowledge; otherwise we would have very little use for the notion. A priori knowledge in this sense is accessible to all rational human beings, and, as demonstrated above, it is in a constant bootstrapping relationship with a posteriori knowledge. The aim of metaphysics (and science, I might add) is to establish the actual governing conditions of reality, but this process is fundamentally fallible. Nevertheless, we have good means to falsify a priori propositions which do not hold in the actual world, so we can at least narrow the space of metaphysical possibilities, thus slowly but surely gaining more knowledge about what *might* be actual, even if the space of metaphysical possibilities does approach infinity.

The exact route from a priori reasoning to knowledge about possible configurations of the governing conditions of reality has not been extensively examined yet. It has been shown that metaphysical modality plays an important part in this and it could be said that talk of a priori reasoning just refers to our ability to grasp these metaphysically possible states of affairs, which I take to be grounded in essences. Given this understanding of metaphysical modality, the process is relatively straight-forward: the relations and identity and existence conditions of the objects of our inquiry impose constraints on the possible configurations that reality may take, and the space of possibilities consisting of these configurations is accessible to our a priori capabilities. Modality, then, is what upholds the connection between a priori reasoning and the structure of reality. Further clarifications concerning this relationship will be made in

the next chapter.

The upshot of this characterisation of the a priori is that we can, after all, salvage something of the classic understanding of a priori knowledge. Knowledge acquired with the help of a priori reasoning might not be necessarily true, but it never fails to be possible, insofar as human error is excluded. There may be nothing particularly glorious about a priori knowledge, indeed, as I have argued, much of scientific reasoning falls within its scope, but there is no doubt about its value for philosophy and science, as it is the basis of the scientific method and all philosophical reasoning.

9. Modality and Metaphysics

In this chapter I will sketch a theory about the nature of modality and our epistemic access to modality. My main concern will be to settle what modality is grounded in – this will be examined by analysing the distinction between conceptual or epistemic modality[79] and metaphysical or genuine modality. I will argue that we are not dealing with two distinct kinds of modality here; in fact, conceptual modality is at best a subspecies of metaphysical modality. Thus, the modal space is exhausted by metaphysical modality. Our epistemic access to modality is best illustrated by a thorough examination of the necessary a posteriori. It will be shown that there is quite a lot that has to be unpacked in a posteriori necessities, most importantly, we need to acknowledge that there is an a priori part in a posteriori necessities. As a by-product, my inquiry into the necessary a posteriori will produce a detailed analysis of our epistemic access to modality. Here, as I suggested above, a priori reasoning is our guide.

Our inquiry begins with the distinction between conceptual and metaphysical modality. The majority view is, following Kripke (1980), that the distinction is genuine and that there are some things which are conceivable, i.e. conceptually or epistemically possible, but metaphysically impossible. To avoid launching into Kripke exegesis, I will abstain from analysing Kripke's own position, instead I will refer to the established interpretation.[80] According to this interpretation, conceivability is a useful, but fallible guide to metaphysical possibility. A posteriori knowledge then delimits the space of

79 Often these two are taken to refer to the same type of modality, and I am taking that approach here because I will argue that they indeed do amount to the same thing in terms of modality, that is, they are not distinct kinds of modality at all. These issues will be clarified in due course.

80 Proponents of this general line of thought that is usually referred to as 'Kripkean' are many, and recent accounts include Hughes (2004) and Soames (2005).

conceptual possibilities so that we can sieve out the genuine, metaphysical possibilities. The alternative view states, in essence, that the distinction between conceptual and metaphysical modality fails and in fact we are only dealing with one type of modality – the conceptual type. Generally this is combined with a suggestion about how to reduce metaphysical modality to conceptual modality.[81] Clearly, there is also a third option available, namely, that the distinction between conceptual and metaphysical modality fails because *metaphysical* modality is the only type of modality. This is the view that I will be defending.[82] The upshot of this view is that all other types of modality are either reducible to metaphysical modality, or alternatively they are not modality proper at all

None of the listed views is any good without an independent account of the nature of modality. In fact, it is the nature of modality that settles which one of the views is correct. First of all we must examine what conceptual and metaphysical modality amount to, that is, what could these types of modality be grounded in. The case of conceptual modality seems quite straight-forward. Presumably, it is grounded in concepts and our epistemic access to it is via conceivability. But a clarification is needed, for above I talked about epistemic modality as if it was synonymous with conceptual modality, yet it seems that there is a way to distinguish them. One of Kripke's passages about the nature of epistemic possibility goes as follows:

> If I say, 'Gold *might* turn out not to be an element,' I speak correctly; 'might' here is *epistemic* and expresses the fact that the evidence does not justify *a priori* (Cartesian) certainty that gold is an

81 This is, roughly, the view that Chalmers (1996) and Jackson (1998), among others, have been defending, although Jackson is perhaps the only one who commits to it explicitly and Chalmers in fact talks in terms of two modal spaces. However, we will see that the logical consequences of his views are similar to Jackson's.

82 At least Fine (2002) has also defended this view, arguing that other types of modality can be reduced to metaphysical modality, albeit with the exception of natural and normative modality.

> element. I am also strictly correct when I say that the elementhood of gold was discovered *a posteriori*. If I say, 'Gold *might have* turned out not to be an element,' I seem to mean this metaphysically and my statement is subject to the correction noted in the text. (Kripke 1980: 143n.)

Here the 'might' is epistemic because it does not need to be true in any (metaphysically) possible world that gold is not an element. Given that the sentence 'Gold is an element' is (necessarily a posteriori) true, it is not (metaphysically) possible that Gold might have turned out not to be an element. To generalise: for a proposition to be epistemically possible, it does not need to be metaphysically possible, and on the other hand, if both terms in a true identity sentence are rigid designators, then the identity-relation in question has to be metaphysically necessary. So, the sentence 'Gold might have turned out not to be an element' seems to make a metaphysical claim, when it should only be making an epistemic claim, as in the case 'Gold might turn out not to be an element'. This is the kind of correction that Kripke refers to in the quoted footnote. Now, on the other hand, it does not appear to be conceivable, at least not any more, that gold is not an element, given the a posteriori knowledge that we have about its elementhood.

So, what is at issue here is our understanding of conceivability. Some would like to say that it is always conceivable that things might have been otherwise, while others would insist that conceivability is restricted by the current a posteriori framework. Kripke does not give an explicit account of these matters and there does not seem to be any general convention about the relationship between conceptual and epistemic modality. The major issue, in any case, is whether we should fix conceivability in terms of how the world might be *before* we have any a posteriori knowledge, or how the world might be

given the a posteriori framework.[83] One way to read this distinction between the concepts of epistemic and conceptual possibility is to apply the 'a priori' version to epistemic possibility and the 'a posteriori' version to conceptual possibility. This is by no means the only way, but it would seem to be consistent with Chalmers (2002a: 156-159). The problem, however, is that 'conceptual' and 'epistemic' are often used interchangeably. To simplify matters, I will here only consider the stronger interpretation of conceivability and I will continue to use the words 'conceptual' and 'epistemic' interchangeably – this should cause no serious problems, as the stronger interpretation is the one that seems to be taken for granted in the relevant connections (cf. Jackson 1998).[84]

It seems that the stronger version of conceivability has to be grounded in something that is purely a priori, or, more accurately, everything that is not ruled out by a priori reasoning is conceptually possible. Chalmers (2002a: 158) further separates this kind of negative definition from a positive one – the latter requires that we can coherently imagine a situation (as if it was actual) that would verify the possibility in question. Defined as such, conceptual modality would only seem to apply to sentences like 'Hesperus is Hesperus' or 'All bachelors are unmarried', that is, truths that can be discovered merely with the help of conceptual reflection.[85] Metaphysical modality, on the other hand, is usually considered to concern more substantial matters – one way to put this is that metaphysical necessity is broad logical necessity, that is, truth in all

83 Yablo (1993) suggests a number of different subscripts for different sorts of conceivability. Chalmers (2002a) thinks that there might be up to eight types of conceivability; it is his distinction between primary and secondary conceivability that reflects the issue at hand. See also Hughes (2004: 86 ff.).

84 There is in fact another reason to adopt this usage, as it helps to avoid confusion when we talk about metaphysical modality, which is often a posteriori.

85 This interpretation can perhaps be challenged, but I will postpone further analysis until I have established the basis of my account.

logically possible worlds.[86] This is to separate it from strict and narrow logical necessity, the first concerning only laws of logic and the latter concerning laws of logic plus the definitions of concepts. Broad logical necessity, or metaphysical necessity as we will call it, concerns the identity and existence conditions of entities, thus making it the type of modality most plausibly associated with a posteriori necessities.

These initial definitions, however, leave a lot to be specified and can be rather misleading. Nevertheless, we need to have something to work on and this is roughly the picture that Kripke's work on a posteriori necessity and modal epistemology is usually considered to have inspired. We should now examine the view that challenges the move from a posteriori necessity to metaphysical modality and which is, at least implicitly, committed to a wholly conceptualist view of modality. This type of view is commonly defended by an appeal to the framework of two-dimensional modal semantics.[87]

Very roughly, the idea of two-dimensional semantics is that where traditionally modality is seen as 'considering something to be possible counterfactually', there is another way to think about it, namely to 'consider something to be possible actually' (cf. Chalmers 2006a, 2006b). These different ways to think about modality are supposed to reflect metaphysical and conceptual or epistemic modality, respectively. This gives the two-dimensionalist a tool to talk about metaphysical necessities as if they were not true in the actual world, e.g. the epistemic possibility that Hesperus is not Phosphorus is not ruled out by a priori reasoning and thus there is a perfectly clear sense in which

86 Cf. Plantinga (1974), Forbes (1985), Lowe (1998), Fine (2002), and others.

87 Different versions of two-dimensional semantics have been put forward by Kaplan (1978, 1989), Stalnaker (1978), Evans (1979), Davies and Humberstone (1981), Chalmers (1996) and Jackson (1998). Here I will focus only on the last two, often dubbed 'epistemic two-dimensionalism'.

Hesperus is possibly not Phosphorus. This is not in conflict with the Kripkean idea of metaphysical necessity, or so Chalmers (2006b) argues.

What is relevant for our purposes is how the two-dimensional picture could account for metaphysical necessity. Chalmers endorses the idea that there are two distinct ways to understand modalities, which he relates to what he calls the primary and the secondary intension, and here it is the secondary intension that is supposed to correspond with the traditional understanding. But let us take a closer look at these secondary intensions and what they amount to. Chalmers (2002b: ch. 7) argues that what is relevant for the Fregean view of language are the epistemic intensions, i.e. the primary intensions, and thus epistemic modality; whereas Kripke's case involves secondary intensions and thus metaphysical modality. Two-dimensional semantics is supposed to be able to accommodate both of these cases. Unfortunately, because Chalmers takes the case of secondary intensions to correspond with the classic Kripkean story, he does not say a great deal about them. It seems, however, that the difference between primary and secondary intensions lies in their epistemic status; here is how Chalmers puts it in terms of primary and secondary conceivability (which correspond with primary and secondary intensions, respectively):

> Unlike primary conceivability, secondary conceivability is often a posteriori. It is not secondarily conceivable that Hesperus is not Phosphorus, but one could not know that a priori. To know this, one needs the empirical information that Hesperus is actually Phosphorus. This aposteriority is grounded in the fact that the application of our words to subjunctive counterfactual situations often depends on their reference in the actual world, and the latter cannot usually be known a priori. (Chalmers 2002a: 159.)

The story that is starting to emerge here goes as follows. Conceptual or epistemic possibility is purely a priori and (primary) conceivability is a guide to it – everything that is not ruled out by a priori reasoning is possible in this sense. Metaphysical possibility, however, is restricted by a posteriori information. According to Chalmers, when we talk about Hesperus and Phosphorus counterfactually, the application of our words depends on their reference in the actual world, which is plausibly in the realm of a posteriori knowledge. This is a fairly simple picture, as the only difference between conceptual or epistemic modality and metaphysical modality is indeed that they have a different epistemic status. However, our initial, supposedly Kripkean picture about the difference between these types of modality seemed considerably more substantial.

Indeed, it appears that there is an argument available here for the likes of Frank Jackson, who would rather see Kripkean metaphysical modality be reduced to conceptual modality altogether. Here is how it goes: the sentence 'Hesperus is Hesperus' is clearly purely a priori and necessary, it reflects the primary intension of 'Hesperus'. The supposed metaphysical necessity, 'Hesperus is Phosphorus', requires a posteriori information, but is there anything *else* that separates it from sentences like 'Hesperus is Hesperus'? According to Jackson (1998: 69-70), this difference in epistemic status is all that there is to it. Moreover, there is nothing else than the empirical discovery that Hesperus is in fact Phosphorus that differentiates these sentences. If this is the case, it would seem that the type of modality that is in effect in the case of 'Hesperus is Hesperus' is quite sufficient for the case of 'Hesperus is Phosphorus' as well. There is a difference between these cases, but 'The difference lies, not in the kind of necessity possessed, but rather where the labels "a priori" and "a posteriori" suggest it lies: in our

epistemic access to the necessity they share' (Jackson 1998: 69-70).

It is somewhat surprising that Jackson is the only two-dimensionalist who has explicitly put forward an argument like this, for it seems that the two-dimensional framework can only accommodate this sort of view.[88] The distinction between primary and secondary intensions appears to be grounded in their epistemic status, indeed, this much is quite explicit in everything that Chalmers says. The way I see it, then, is that two-dimensionalists are, at least implicitly, committed to a thoroughly conceptualist view of modality. Whether this picture can accommodate the Kripkean story is another question and depends on what we consider the Kripkean story to be, but this is irrelevant for the issue at hand. What we are interested in is the nature of modality, and now it is time to see whether the conceptualist view can stand its ground.

It was suggested earlier that metaphysical modality is somehow more substantial than conceptual modality, but according to Jackson the difference between metaphysical and conceptual modality can be explained away as a difference in their epistemic status. There are several ways for the friend of metaphysical modality to challenge this view. For one thing, we can challenge Jackson's (1998: 70-86) route to this conclusion: he offers two reasons to abandon the distinction between metaphysical and conceptual modality, one is Occamist, appealing to ontological parsimony, the other one is based on the two-dimensional framework. The first reason is hardly conclusive, as Jackson's point is that we do not need metaphysical modality to explain the necessary a posteriori. Even if this is true, it does not mean that there could not be other explanatory roles that

88 Note, again, that I am here focusing on the epistemic view of two-dimensionalism (which both Jackson and Chalmers have adopted), however, it is plausible that other versions are equally problematic.

we need metaphysical modality for. However, this is somewhat irrelevant to start with, as the need for distinguishing between conceptual and metaphysical modality presumably lies in the fact that there are modally loaded sentences which have their modal status in virtue of fundamentally different things: conceptual modalities in virtue of the concepts involved and metaphysical modalities in virtue of some metaphysical truths. For instance, in the case of 'Hesperus is Phosphorus', the necessity is grounded in the identity conditions of heavenly bodies. Jackson's second reason, the appeal to two-dimensionalism, can also be easily challenged; in fact, it was already pointed out above that the two-dimensionalist framework assumes a thoroughly conceptualist account of modality, as it cannot accommodate metaphysical modality. This hardly constitutes an argument against the distinction between conceptual and metaphysical modality, rather, it begs the question.

Perhaps Jackson could still insist that what motivated the distinction between conceptual and metaphysical modality in the first place was the Kripkean necessary a posteriori and that he has offered an alternative way to account for a posteriori necessities, which does not require metaphysical modality. All we have is conceptual modality plus empirical discovery. But this is a crude simplification. Consider what the empirical discovery amounts to.[89] In the case of 'Hesperus is Phosphorus', the identity in question was established with the help of empirical observations, but this did not happen overnight. Rather, there was a series of empirical observations and gradually it became apparent that the orbits of Hesperus and Phosphorus are identical. However, we need something more to be able to judge that Hesperus and Phosphorus are identical, namely, we need the background assumption that two heavenly bodies can not both

89 Recall the discussion from the previous chapter.

share their orbits and not be identical. This background assumption seems quite self-evident, but its importance should not be underestimated. Furthermore, it is not empirical in nature, it is a priori. This implies that there is more to the story of a posteriori necessity than Jackson suggests, namely, the empirical part is not purely a posteriori. The a priori part in a posteriori necessities has been noted a number of times, but for some reason its importance (and nature) has been neglected. There are good reasons, though, to think that Kripke himself was aware of its importance when he wrote about the necessary a posteriori (cf. Salmon 2005: 193-196).

Is there any way for the conceptualist to explain the a priori part in the empirical discoveries associated with a posteriori necessities? For the friend of metaphysical modality, the most plausible route is the essentialist one: metaphysical modality is grounded in essences and the a priori part in a posteriori necessities reflects the identity conditions of the entities at hand. Heavenly bodies such as the planet Venus are material beings and two such entities cannot exist in the same place at the same time (cf. Fine 1994, Lowe 1998). The conceptualist might argue that all this is built into the concepts, that is, Hesperus and Phosphorus are names for a heavenly body and by conceptual analysis alone we can determine that if they exist in the same place at the same time, then they must be identical. But how could this be a feature of the *concepts*? It is of course true that 'Hesperus' and 'Phosphorus', as we use the concepts now, refer to the planet Venus, but they could as well refer to 'lights in the sky', which would imply none of the requirements associated with material, heavenly bodies. Thus, we must distinguish between the concepts and any ancillary assumptions that might be associated with them. The crucial part here is the empirical discovery and the a priori framework

that precedes it. Plausibly, when we fix the reference of a concept, all this is in the background, but the only sense in which it is 'built into' the concepts is that we have already done the a priori and empirical work needed to determine the essential features of heavenly bodies. This process is quite independent of the reference-fixing of proper names. Nathan Salmon reads Kripke exactly like this:

> Kripke's view of the matter seems to be this: We know *a priori* that if a biological kind (e.g., a species) *k* is subsumed under a higher-level biological kind (e.g., a genus, class, kingdom, etc.) *k'*, then it is necessary that *k* is subsumed under *k'*. We also know by the direct reference theory of the designation of natural kind terms that such terms as 'cat', 'tiger', 'mammal', and 'animal' are rigid designators of natural kinds. Putting these two together, we know *a priori*, by "philosophical analysis," that if all cats are animals, then it is necessary that all cats are animals, and if all tigers are mammals, then it is necessary that all tigers are mammals, etc. Science discovers empirically that cats are in fact animals, and that tigers are in fact mammals. Combining these scientific discoveries with what we know *a priori* by philosophical analysis, we infer that it is necessary, even though *a posteriori*, that cats are animals and that tigers are mammals. Given what we know by philosophical analysis – the theory of direct reference plus the *a priori* essentialist fact that every biological kind *k* is such that it could not fail to be subsumed under any of the higher level biological kinds *k'* that in fact subsume it – any empirical discovery that cats are in fact animals, or that tigers are in fact mammals, is indirectly but automatically an empirical discovery that is is *necessary* that cats are animals, or that tigers are mammals. (Salmon 2005: 195.)

What a posteriori necessities are grounded in is thus the a priori essentialist framework in the background. The empirical discovery is a rather unimportant part of the whole process (in terms of modality), as the nature of metaphysical modality is *not* exhausted by the aposteriority that this empirical discovery induces, in fact, it just verifies the a priori hypothesis. The example that Salmon deals with concerns the essential

dependence between higher- and lower-level kinds, but similar descriptions can be given for all metaphysical necessities, as was sketched above in the case of Hesperus and Phosphorus. An interesting question is whether we can do this in the case of more substantial identity sentences, such as 'Water is H_2O', or 'Mental states are brain states'. If 'Water is H_2O' is in fact a metaphysical necessity, we must show it in terms of the identity conditions that this identity is grounded in. The identity between water and H_2O is based on the natural laws that govern water molecules and only if these laws are metaphysically necessary would it be possible to show that water being H_2O is in fact a metaphysical necessity. Obviously it all comes down to the a priori part, which, in the case of water and H_2O, concerns the organisation of hydrogen and oxygen atoms and their tendency to form H_2O-molecules. However, mere reflection on chemistry is insufficient to ground the metaphysical necessity of the laws governing this organisation, instead, a thorough analysis of the nature of these natural laws is needed (cf. Lowe 2007).

So, the real lesson about the necessary a posteriori concerns the a priori framework on the background and it seems that the conceptualist has no means to reduce this framework to concepts. Where does this leave him? Well, given the picture of metaphysical modality that we now have, it appears that the conceptualist's project can be turned around: conceptual modality can be reduced to metaphysical modality. This is the line that Fine (1994, 2002) takes.[90] However, there is a further problem here, namely, what are we to say about claims that are metaphysically impossible, yet

90 As Fine puts it, each class of objects can be thought of as having its own sort of modality, based on the essence of that particular kind, but it seems to me that the *modal* input in each case is the same, it just concerns different kinds of entities.

conceptually possible – claims like 'Hesperus is not Phosphorus'?[91] The conceptualist can easily accommodate claims like this, but on the face of it they might seem to pose a problem for the view that metaphysical modality is the only kind of modality. The easiest way to deal with this would seem to be to adopt the view that we indeed do have two modal spaces at hand. But there is a problem that prevails, for we should somehow be able to determine how strong an alignment there is between conceptual and metaphysical possibility. This reflects the question about our epistemic access to modality, i.e. to what extent is conceivability a guide to metaphysical possibility.

The two-dimensional framework does not help in answering this question: we saw that it cannot accommodate metaphysical modality. However, a thorough conceptualist would not even ask this question, instead, he would presumably suggest that conceivability is an infallible guide to conceptual possibility – after all, this is supposed to be an a priori matter. The upshot of all this is that those who wish to uphold the distinction between metaphysical and conceptual modality are unable to determine the exact boundary between them, and those who abandon metaphysical modality altogether are committed to infallibilism about our epistemic access to modality. But there is a more natural way to deal with this problem.

The solution that I have in mind focuses on the nature of modality understood as being grounded in the essences of the entities it concerns. In a somewhat trivial sense, this implies that we have as many kinds of modality as we have different kinds of entities: physical modality which concerns all material objects, biological modality which

91 Cf. Sturgeon (forthcoming), who places these claims in what he calls the *Kripke Zone* and presents a case against the view that a priori reasoning is an infallible guide to possibility. I have some sympathy towards his account, but mine will be slightly different.

concerns living organism and indeed conceptual modality which concerns concepts. But the modality in each of these cases is grounded in the same features of reality, namely in the identity and existence conditions of the entities in question. Clearly, then, there is only one kind of *modality* in effect. So, given this picture, how should we deal with sentences like 'Hesperus is Hesperus' or 'All bachelors are unmarried', that is, classic cases of conceptual necessity?

Well, the answer depends on what kind of propositions we take these examples to express. One option would be to take sentences like 'Hesperus is Hesperus' to express the self-identity of material objects of a certain kind, in which case the modality in question would be grounded in the identity conditions of these material objects. But this would mean that there is nothing *conceptual* about the necessity of 'Hesperus is Hesperus', as the proposition would not concern the essences of *concepts*, but rather the essences of heavenly bodies. Plausibly, when sentences like these are discussed as examples of conceptual modality, it is more likely that they are taken to be necessary in terms of the essences of concepts. According to this approach, a conceptual necessity would presumably be a proposition which is true in virtue of the nature of all concepts (cf. Fine 1994: 8). Thus, the proposition expressed by 'Hesperus is Hesperus' is exactly the same as the proposition expressed by 'abc is abc'. Clearly, this analysis will not do in the case of 'All bachelors are unmarried', as all concepts will not produce the same outcome. As Kit Fine (1994: 8-11) has convincingly argued, here we would rather opt for a solution that respects the meanings of the terms, i.e. the meaning of a concept is an essential feature of it. In the latter case, then, modality seems to reduce all the way to the meaning's essence.

This rather hasty treatment does not to do justice to the complexity of these matters, but serves as a brief reconstruction of where Fine's account takes us. What is crucial here is that the modality in 'Hesperus is Hesperus' and 'All bachelors are unmarried' seems to amount to different things. In the first case the meaning of the concepts does not enter the picture, so in effect we are talking about strict logical necessity: the proposition expressed amounts to nothing more than '$A = A$', i.e. the law of identity. The second case, however, would appear to be a case of narrow logical necessity, i.e. true in virtue of the laws of logic and the definitions of the concepts involved.

What about sentences like 'Hesperus is not Phosphorus', that is, conceptual or epistemic possibilities that are not metaphysically possible? Apparently we have strong intuitions that in some sense it might have turned out that Hesperus is not Phosphorus, and if this is not a metaphysical possibility, then surely it must be an epistemic or conceptual possibility. But consider the example 'Cats are animals', or any other example concerning natural kinds. As Kripke puts it, we 'know a priori that, if they [sentences like 'Cats are animals'] are true at all, they are necessarily true' (Kripke 1980: 138). Now, presumably, if we know this a priori, then there should be no sense in which we could conceive the opposite (because it is ruled out by a priori reasoning and is thus even conceptually impossible). However, our a priori capabilities are not infallible and in ordinary language we often say things like 'Cats might turn out to be demons' (Kripke 1980: 122). But when we consider the possibility with philosophical scrutiny, we should see that if we take the thought-experiment to its logical end, we would not actually think that cats are demons, but instead that something, namely demons, have taken the form of cats. So Kripke continues:

> We could have discovered that the actual cats that we *have* are demons. Once we have discovered, however, that they are *not*, it is part of their very nature that, when we describe a counterfactual world in which there were such demons around, we must say that the demons would not be cats. It would be a world containing demons masquerading as cats. Although we could say cats *might turn out* to be demons, of a certain species, given that cats are in fact animals, any cat-like being which is not an animal, in the actual world or in a counterfactual one, is not a cat. The same holds even for animals with the appearance of cats but reptilic internal structure. Were such to exist, they would not be cats, but 'fool's cats'. (Kripke 1980: 126.)

What has happened here is that when we say that cats might turn out to be demons, we are talking about this possibility as if it was a metaphysical possibility, indeed, this is really the only way that we can come up with such scenarios. However, as Kripke pointed out, we should be able to rule out scenarios like this by a priori means. But because we were able to conceive of the scenario to start with, we seem to have some kind of a problem: we must explain the phenomenon somehow. A plausible way to do this seems to be to say that these scenarios are conceptually or epistemically possible, although metaphysically impossible. But, I put it to anyone who goes for this solution, how could this be the case if we know *a priori* that if cats are animals, then they are necessarily animals? In other words, what is our epistemic access to the conceptual possibility that cats might turn out to be demons, if it is already ruled out *a priori* that cats could fail to be animals? The importance of the often neglected a priori part in a posteriori necessities should be apparent now, as it rules out the supposed epistemic access to conceptual modality.

I anticipate a fair objection: even if it is ruled out a priori that if cats are animals then they are necessarily animals, it is not ruled out a priori that cats are not animals – we

need empirical work for that. Or take the case of Hesperus and Phosphorus again: it seems that, a priori, we have little to say about the identity or non-identity of Hesperus and Phosphorus. A priori, the sentences 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' look quite different, even though we now know that the words 'Hesperus' and 'Phosphorus' refer to the same entity. In any case, before we acquire at least some a posteriori information, we do not even know which proposition is expressed by the sentence 'Hesperus is Phosphorus'. Same naturally goes for 'Hesperus is not Phosphorus'. It would not do to insist that 'Hesperus is not Phosphorus' is possible at this stage – surely we are going to need at least the definitions of the concepts 'Hesperus' and 'Phosphorus' to say anything about the modalities involved. Yet, given that they both refer to the planet Venus, the proposition expressed by 'Hesperus is not Phosphorus' is clearly false. Thus, only the first case could possibly accommodate the possibility of 'Hesperus is not Phosphorus'. But at that stage the only modality that we can have is strict logical modality, as in 'Hesperus is Hesperus'. Of course, the word 'Phosphorus' could have referred to something else than the planet Venus, say, the planet Mars, in which case the sentence 'Hesperus is not Phosphorus' would be true, but the modality in effect here concerns the original reference-fixing of the word, and this is surely *not* what conceptual modality was supposed to amount to.

What this line of thought is supposed challenge is the route from 'in some sense it seems that Hesperus might not be Phosphorus' to the conceptual possibility of 'Hesperus is not Phosphorus'. I suppose that one could insist that in the very hollow sense that we saw above, 'Hesperus is not Phosphorus' is possible, that is, it is possible that it expresses a true proposition, for nothing in its *logical form* contradicts this. But this is a very

uninteresting observation and it certainly lacks the strength that many would like to associate with the possibility of 'Hesperus is not Phosphorus'. Once we introduce the definitions of the concepts involved, however, we see that the proposition is clearly false.

One last attempt might be to insist that, in a perfectly clear sense, it might have turned out that Hesperus is Venus and Phosphorus is some other heavenly body. But this is just to make the mistake that has been repeatedly noted, namely to talk about a metaphysical impossibility as if it was metaphysically possible. Of course it could not have turned out that Hesperus is not Phosphorus, that is to say that it could have turned out that Venus is not identical with itself! Similarly, it will not do to insist that Hesperus might still turn out not to be identical with Phosphorus. For even if we have got the empirical story horrifically wrong and Phosphorus is, say, a further planet in our solar system, this would only underline the fallibility of our empirical methods. The whole 'Hesperus and Phosphorus' talk would have to be amended (as would quite a few other things); perhaps we would redefine the word 'Phosphorus' so that it would not refer to the planet Venus. All this is, I suppose, conceivable, but none of it concerns modality: as we have seen, the modal input in 'Hesperus is Phosphorus' is based on the a priori part, which holds no matter how we might have to amend our empirical story. According to the current story, 'Hesperus' and 'Phosphorus' both refer to the planet Venus and that is all that matters.

The upshot of all this, once again, is that the difference between sentences like 'Hesperus is Phosphorus' and 'Hesperus is Hesperus' is indeed much deeper than just a difference in their epistemic status. They differ in regard to their a priori part: the a

priori part in them is true in virtue of different things. As I have argued in length above, the a priori part in 'Hesperus is Phosphorus' concerns the identity conditions of heavenly bodies. The truth of the proposition 'Hesperus is Hesperus', however, can be determined strictly in virtue of the laws of logic. This should be the starting point for any solution to Frege's Puzzle, but more importantly for our concerns, any differences in the modal status of these sentences has to be settled at this level. As our examination implies, the only difference in their modal status is that they are necessary in virtue of different things. Nevertheless, they are both necessary in virtue of the *essences* of these things, thus, the modality in question is reducible to the metaphysical sort.

What I still must do is to explain what, in fact, causes these unfortunate misconceptions about conceptual modalities. The answer is simple enough: both our a priori and our empirical capabilities are fallible. Yes, we should be able to rule out a priori the possibility that cats might turn out to be demons, given that they are in fact cats, but sometimes we are overwhelmed by our imagination and we fail to do this. So, rather than conceptual possibilities, cases like these are pseudo-possibilities produced by our failure to grasp the genuine, metaphysical possibility determined by the identity conditions of natural kinds. Conceptual modality, then, amounts merely to cases like 'All bachelors are unmarried', which can be neatly reduced to metaphysical modality. The details of our epistemic access to metaphysical modality are yet to be specified, but the structure is implicit in what has already been said both in this and the previous chapter.

Conceivability clearly cannot serve as a guide to metaphysical modality, so what is our

epistemic access to metaphysical modality based on? Well, if what I have said above is correct, it seems that metaphysical modality has a distinctive feature which should be accessible to us via a priori reasoning. This feature is of course the a priori part that we examined whilst discussing a posteriori necessities. The a priori part, as we saw, is grounded in the essence of the entity that the modality concerns, i.e. its identity and existence conditions. As these conditions seem to be within the grasp of our a priori capabilities, the link to modality is already established. The Finean understanding of metaphysical modality, namely that 'we should view metaphysical necessity as a special case of essence' (1994: 8) enables us to explain modality strictly in terms of the identity and existence conditions of the entities involved. In effect, then, the question about our epistemic access to modality reduces to the question of our epistemic access to essences.[92]

We have some very strong reasons to think that a priori reasoning is a good, although fallible guide to essences. Indeed, it seems that if we can have any substantial a priori knowledge at all, it will have something to do with essences. As we saw in the case of Hesperus and Phosphorus, sometimes the crucial information is something as simple as the constraints that govern the identity conditions of material bodies, namely that two material bodies cannot exist in the same place at the same time. There is, of course, quite a bit more to the essence of the planet Venus, but the story about the necessity of 'Hesperus is Phosphorus' can be settled with as little knowledge about the essence of Venus as this. In the case of 'Cats are animals', on the other hand, we need a priori knowledge about the connection between the higher-level kind 'animal' and the lower-

92 See Correia (2006) for some specifications to Fine's account, namely the distinction between general and individual essences. I acknowledge this distinction, but will not discuss it here.

level kind 'cat', namely that all instances of the lower-level kind must also be instances of the higher-level kind. These are relatively simple cases and it might seem that the a priori input does not amount to much, but this is not the case. In the previous chapter I discussed a number of more substantial cases, such as the discovery of Neptune.

There is one further concern: the account of the a priori which I put forward in the previous chapter might seem to leave room for some doubt concerning the necessity of sentences like 'Cats are animals'. It seems that, after all, there is *one* sense in which cats might turn out be demons: we might have gotten the empirical story wrong (cf. the case of Hesperus and Phosphorus). This, however, has no consequences for the a priori part, for even if the empirical story fails, it is still true that *if* cats are animals, then they are necessarily animals. In fact, as our treatment of the case suggests, if cats turned out to be demons, then, apparently, cats would not exist in the actual world, so we could still correctly say that 'All cats are animals' is a metaphysical necessity. Here we are interested in the essential connection between the higher-level and lower-level kinds; this is a feature of the categorical structure of reality – demons masquerading as cats would presumably reflect the very same structure. In this case the particular kind of demon that masquerades as cats would be a lower-level kind whereas 'demons' would take the place of 'animals' as a higher-level kind. The case would then just be that in the actual world there *are no cats* that could fail to be animals, but only demons masquerading as cats.

In a similar fashion, Newton's gravitational theory, strictly speaking, does not hold in the actual world, but the a priori validity of the hypothesis still holds, as I demonstrated

in the previous chapter in the case of Euclidean geometry. This does not necessarily imply that Newton got the story about the identity conditions of material bodies wrong, rather, he failed to list *all* the relevant conditions. In fact, it was quite a good effort, which is of course why we still use Newton's theory in all but the most extreme situations. Einstein and others managed to add something to this story about the interaction of material bodies. And it seems that there might still be a lot more to it when quantum gravity enters the picture. One thing is certain though: we have grasped more and more of the essential features that govern the interaction of material bodies; we can only hope that someday we will be able to complete the story. Given the success of science, it seems that a priori reasoning combined with the scientific method is a fairly reliable guide to real essences. Even if the whole story about a particular governing feature of reality, say, gravitation, remains elusive, we can at least come up with fairly accurate approximations.

To sum up: I have argued for a strictly essentialist understanding of modality – understanding that sees modality as a feature brought about by the identity and existence conditions of different kinds of entities. Our epistemic access to modality, according to this view, is based on a priori reasoning – a reliable guide to metaphysical possibility and a fallible, but reasonable guide to real essences. I have also argued that conceptual modality is a considerably hollower phenomenon than is usually suggested, and that it is fully reducible to metaphysical modality. With conceptual modality goes the framework of two-dimensional modal semantics, which, it seems, cannot accommodate metaphysical modality understood in the way suggested here. As we saw, the necessary a posteriori is a key issue here. If I am right, a central feature of a

posteriori necessities has been neglected, although this feature seems to be central already in Kripke's characterisation of the issue. This feature is of course the a priori part in a posteriori necessities – it seems to be unanalysable in any but essentialist terms, which might be the reason why it has been so widely neglected. The upshot of all this is that we can indeed be ontologically parsimonious about modality, as Jackson suggests, but the modal space that we are dealing with is metaphysical, not conceptual; indeed, we could even say that modality is just a supervenient feature of the governing conditions of reality.

10. Truth and Metaphysics

Truth is a particularly difficult topic, especially so for a proponent of metaphysical realism. The 'easy' way to deal with truth, direct correspondence, has been largely undermined, mostly by philosophers who are not very sympathetic to metaphysical realism, but are rather inclined to go for some sort of relativism, like Hilary Putnam. In chapters one and two I addressed a number of Putnam's objections, but a positive account of truth is needed if we hope to address the relativist's objections conclusively. So, it seems that direct correspondence will not do, but a more sophisticated method of dealing with the problem of truth from the realist point of view is the theory of truthmaking. The most notable defender of truthmaking is probably David Armstrong (1997, 2004), whose theory will receive some attention in what follows. However, Armstrong's theory of truthmaking is very closely tied to his ontology, that of states of affairs, and it has some important implications for his conception of truthmaking. The most obvious of these implications is that, according to Armstrong, truthmakers are, in general, facts. Of course, as Armstrong (2004: 4) happily admits, the idea of truthmaking can be separated from the question of what truthmakers in fact are. In this chapter I will build on this idea: we will see that the idea of truthmaking is plausible and independent from a specific ontology. Consequently, all that needs to be established is that truthmaking is a well-motivated way to account for truth, and that it can be combined with a realist ontology.

Indeed, truthmaking does seem to be a very plausible idea: the idea of there being something *in the world* that guarantees the truth of true propositions fits our intuitions

very nicely – at least the intuitions of those of us who still crave after some sort of a correspondence theory of truth. Not surprisingly, truthmaking is often considered to be a more sophisticated version of the correspondence theory of truth. But recently (e. g. Beebee & Dodd 2005) there has been a lot of hostility towards truthmaking understood like this; many would like to see it as a more general framework, not strictly as a vessel for the correspondence theory of truth. This broader conception of truthmaking fits in nicely with my agenda: as I will argue, this is all the better for truthmaking, and further, this is all the better for those of us who do wish to cash out our realist intuitions about truth with the help of truthmaking, for it only strengthens the case against the main opponents of a realist conception of truth.

In addition to Armstrong, accounts of truthmaking which are intimately connected with certain, although rather different metaphysical backgrounds have been put forward for example by E. J. Lowe (2006) and David Lewis (2001, 2003), but our main focus here is how truthmaking could best be combined with a realist conception of metaphysics without making too many commitments in terms of the exact metaphysical framework. But some recent accounts suggest that truthmaking is not a specifically realist theory at all. For instance, Pihlström (2005) has suggested that the idea of truthmaking could also be combined with pragmatism, which, at least in some of its forms, is quite hostile towards metaphysical realism. The compatibility between pragmatism and truthmaking has also been noted by Chris Daly, and he suggests further that it is compatible with idealism as well (2005: 95). What I hope to establish, however, is that truthmaking can indeed provide a systematic method of dealing with truth in a rigorously realist way. Not only would this help in answering questions about truth as such, but it would

certainly help metaphysical realists to counter the usual objections from the relativists.[93] Before we go into the details of truthmaking theory, a few words about truth itself are in order. I am sympathetic towards the view that Lowe (2006: 177) takes on truth, namely that truth should be conceived on the lines of alethic monism. The idea of one and indivisible truth, as alethic monism suggests, might sound rather mystical, but the important feature is merely that alethic monism upholds the principle of non-contradiction (Lowe: 188 ff., see also the next chapter). In a perfectly clear sense truth is many and quite scattered, but there are nevertheless some governing features, such as the principle of non-contradiction, which are universal for truth. Truth is one and indivisible in just this sense: it must follow a very clear pattern, because for every proposition it holds that that proposition is either true or false.

I would hope that most philosophers are quite happy with what has just been said, but of course part of this is already familiar from Dummett (1991).[94] He would presumably insist that bivalence, which the principle of non-contradiction is usually considered to assume, is some kind of vice and we should find ways to get around it. Well, I will not try to do that here. However, truthmaking might offer us some help in this regard, for if we are able to show that the idea of truthmaking is plausible *before* we need to make any serious metaphysical commitments, it will turn out that bivalence is not so much a premise here, but rather a necessary implication.

Moving on to truthmaking itself, there are a couple of things that, I believe, can be said without much controversy. One of these is that whatever we take the actual truthmakers

93 As well as pragmatists, anti-realists and such; I am here calling all the philosophers who are hostile towards metaphysical realism relativists, as this seems to be the logical consequence of their views.

94 Recall the discussion from chapter two.

to be, and, I suppose, even regardless of the nature of the relation between propositions and reality (here taken to be a truthmaking relation yet to be more accurately specified), we can in any case say that the (possible) correspondence between a proposition and reality, i.e. between propositions and truthmakers, is not, in general, a one-one correspondence.[95] This is the view that Armstrong (2004: 16) takes and, in essence, seems to be what Lowe (2006: 182) would go for as well. The reason for opting for a many-many relation is simple enough: a single truthmaker can quite clearly be a truthmaker for several truthbearers and correspondingly there might be several truthmakers which serve as a sufficient truthmaker for a given proposition. Perhaps it could be argued that there is always some *minimal* truthmaker for each truth, but as Armstrong points out, many truths do also have several minimal truthmakers, such as the proposition <there exists an x such that x is a human being>[96] (Armstrong 2004: 21).

Another thing that ought to be fairly uncontroversial is that truthmaking is some kind of asymmetrical relation between propositions and something in the world. This something in the world could be facts or states of affairs, as in Armstrong's case, or something quite different, depending on your account of truthmakers. The exact nature of the truthmaking relation is not as uncontroversial though: one possibility is that it is an entailment relation between the existence of truthmaker and the truth of the proposition, but it has also been argued that we are dealing with a grounding relation here (cf. Rodriguez-Pereyra 2005). There is also the question of whether truthmaking is an internal or an external relation. Armstrong favours the first alternative, and it does at least initially seem more plausible that truthmaking is an internal relation, but the

95 I should perhaps add that 'propositions' is merely a placeholder here.
96 Where the angled brackets denote a proposition, following Horwich (1998).

opposite has been suggested as well (cf. David 2005).

Rather than discuss any of these specific problems in detail, I will now turn to the issue of motivating truthmaking in the first place, which is harder than many who have actually put forward theories of truthmaking seem to think. It has been suggested by Daly (2005) that there is one issue about which the advocates of different truthmaker theories always agree upon: that truthmaking does some explanatory work. This is of course a rather natural source of motivation and might indeed be why truthmaker theorists tend to skip the details when explaining their motivation. Clearly, this comes down to the nature of the truthmaking relation, for whatever explanatory work the truthmaker principle might do, it must surely have something to do with the relationship between propositions and truthmakers. So, what kind of motivation could we have?

According to Daly (2005: 102), there are three options. The first one is what he calls the 'Canadian mountie' theory of truthmakers, the idea of which is to argue from examples and to show that we can, in fact, always find a truthmaker for any given truth. Daly accuses this theory of being *ad hoc*, in that it assumes the truthmaker principle without giving any justification for it. Presumably the point is that we need more than a working theory of truthmaking to motivate the idea in the first place, and I do agree with this.

The second strategy suggests that truthmaker theory could help in finding explanations of further ontological problems, such as the theory of universals. Daly (2005: 98-102) argues against Rodriguez-Pereyra's suggestion, namely that truthmakers could explain universals by entailing that it is true that there are some properties which are shared by

several distinct particulars. There are other alternatives as well though, one of them being Josh Parsons' (2005) rather plausible idea that truthmaking could be used to motivate arguments concerning propositions about the past and the future and thus might provide some explanatory power in discussing theories about time, such as presentism. However, while I am not averse to granting the possibility that truthmaking could help in settling other ontological problems, I do not believe that this by itself is a sufficient condition for adopting the truthmaker principle. And neither, of course, does Daly.

The third strategy that Daly (2005: 94-98) considers, namely inference to the best explanation, is perhaps the most common. According to this strategy, truthmaking explains our pro-realism intuitions and captures the core idea of the correspondence theory of truth. Daly considers Armstrong's and Bigelow's theories in this connection. As I noted above, I as well hope that truthmaking could offer a way to characterise a realist theory of truth and help to dismiss any relativist views. But we have to be careful here, for even if truthmaking does offer a way to characterise a realist theory of truth, it does not mean that it would *explain* why realism is any better than other alternatives. And indeed, it seems that the truthmaker principle is not necessarily connected with any realist premises, given that it might be compatible with pragmatism and idealism as well. Daly argues also that the same applies to the correspondence relation, formulated in the following way (CI):

> (CI) <*p*> is true if and only if things are as <*p*> says they are. (Daly 2005: 96-97.)

The idea is that (CI) is compatible with all other theories of truth as well, not only (something like) the correspondence theory of truth. Armstrong (2004: ch. 4) claims that the truthmaker principle could say something more than (CI) says by combining the correspondence relation with the truthmaking principle and his states of affairs ontology, but Daly is not convinced:

> My point here is that the coherence theory and the pragmatic theory are each compatible with the admission of states of affairs. Furthermore, each of these theories is compatible with the admission of states of affairs standing in a correspondence relation to truths. (Daly 2005: 97.)

So, Daly's case against the third strategy is based on the claim that the truthmaker principle does not restrict our choices in terms of ontology in any way and thus fails to provide us the explanation that Armstrong and Bigelow suggest. This is indeed plausible and I would not endorse the strong connection between truthmaking and realism without doubt, or take Armstrong's understanding of the correspondence relation for granted. But it seems trivial that the truthmaker principle could be combined with different ontologies once we acknowledge that the idea of truthmaking is quite distinct from the varying answers concerning the actual truthmakers and truthbearers. And (CI) is certainly neutral in this regard. However, as I have already noted, Armstrong (2004: 4) has no quarrel with this idea. Consequently I am not at all sure whether too many philosophers actually hold the view that Daly criticises.

I think that Armstrong and other advocates of realist truthmaking theories would prefer a somewhat weakened condition when it comes to the truthmaker principle, namely that the truthmaker principle is the best way to characterise the correspondence relation

understood in a rigorously realist sense. When put like this, the details of our ontology are still open, as long as it is a realist ontology, but the motivation for truthmaking is still clear: it is the best way to formulate the realist understanding of the correspondence relation. This hints to a fourth strategy of motivating truthmaking in addition to the three suggested by Daly, and in fact I think that the fourth strategy is closer to how most truthmaker theorists would like to motivate their theories.

The strategy for motivating truthmaking that I will now put forward rests on a very simple point: realism can stand on its on. In other words, we do not need truthmaking to uphold realism. Compared to Daly's third strategy, this changes the direction of explanation. Indeed, it could be said that the fourth strategy does not so much try to provide an explanation, but a justification for truthmaking, although in another sense it can be thought to provide an explanation as well, as we will shortly see. In any case, what is important is that because realism can stand on its own, we can motivate truthmaking with realism, and not the other way around. Admittedly, this does leave us with the not so small task of showing how, exactly, realism stands on its own, but I think that we have good reasons to think so, as I have demonstrated in earlier chapters. Let me summarise some of the main points again, very briefly.

The usual way to argue for (metaphysical) realism is to point out our natural intuitions towards it, somehow address the typical objections and perhaps put forward a detailed ontology. I would add an argument from natural science to this list; that is, it seems to me that realism is the only tenable choice for explaining the success of science, as I have argued in detail in chapters four and five. But in this context, it is the usual

objections against realism that are at issue. By these I mean foremost the relativist objections put forward by Putnam (e.g. 1987: ch. 1), Dummett (1991) and Goodman (1988), among many others.[97] The common aspect of these objections is the critique of the correspondence theory of truth, to which realism is supposedly committed. So, one would think, these objections drive the proponents of realism towards something else, namely truthmaking; be it as it might that truthmaking is just a more sophisticated version of the correspondence theory. This, however, is not as important as it might seem. It could explain why the majority of truthmaking theories are realist in nature, but it is certainly not enough to defend truthmaking against someone who does not share the realist intuitions to start with. Perhaps the only thing that we can say to some opponents of realism is that realism is simply *better* than any of the relativist alternatives because it has so much more explanatory power, and truthmaking only extends that power. This would leave us with the following argument. Given that realism has the greatest initial appeal and that truthmaking seems only to increase that appeal, it is rather straightforward to choose the way to go: realism plus truthmaking is the best theory available. I wish it was that easy. So does Armstrong:

> I do not have any direct argument (for truthmaker necessitarianism). My hope is that philosophers of realist inclinations will be immediately attracted to the idea that a truth, any truth, should depend for its truth for something 'outside' it, in virtue of which it is true. (Armstrong 2004: 7.)

At this point, I am sure that Daly and others would point out that the only thing that hold this house of cards together are exactly the realist intuitions in the background. Well, that is more or less true. But we needed to see that to put forward a better

97 See chapter two.

argument. And it still rests on the point that realism can stand on its own. What we must do now is to solve the following problem, mentioned by Beebee & Dodd:

> Suppose that some formulation of truthmaker theory does indeed succeed in capturing realist intuitions. The question arises, how can truthmaker theory now legitimately be put to use in an argument *for* realism (about a particular domain) and *against* anti-realism? If truthmaker theory itself enshrines a commitment to realism, then presumably the appropriate anti-realist reaction to such an argument is simply to deny whatever truthmaker principle is being used as a premise in that argument. If a given truthmaker principle is to pull its weight in arguments against anti-realism, then we had better have reasons, independently of our commitment to realism, for believing that the principle is true. We wonder whether such reasons are to be had. (Beebee & Dodd 2005: 16.)

So, the task that Beebee and Dodd have given us is to put forward a truthmaker theory that, unlike other suggestions, would be able to capture our realist intuitions. But even if we would succeed in that, we would have to show that there are reasons, independently of our realist intuitions, to believe that this truthmaker principle is true. Perhaps this can be done, but I will not attempt it here. I have conceded above that (at least most) truthmaker theories fail to cash out the realist intuitions *without* leaving room for other interpretations. And, perhaps, the ones that might just be able to do this are not quite as useful or plausible.[98] Yet, does this matter? After all, every one of these suggestions is certainly compatible with realism as well. Thus, even though truthmaking might be an ontologically neutral way of talking about truth, and indeed because of that, we can combine it with a realist ontology. And if we can do that, we have a very efficient argument against the Putnam-Dummett-Goodman line of thought. This is because their

98 However, if this route is taken, my money would be on Lowe's (2006) suggestion.

objection is, in essence, that you *can not* combine a realist ontology with a plausible theory of truth. Well, it seems that you can. The only thing left to do is to show that the truthmaker principle is in fact plausible.

How should we go on about showing that this weakened version of truthmaking is plausible? Well, our task is considerably easier than it would be if we tried to come up with a truthmaker theory which captures our realist intuitions and *only* our realist intuitions. Now we need only to come up with a principle which is plausible, useful and compatible with realism. If it proves to be compatible with pragmatism or idealism as well, then so much better for truthmaking, as this only contributes to its applicability and plausibility. Of course, when understood like this, truthmaking gives us very little motivation to go for realism, contrary to what many proponents of truthmaking might hope. But I am not looking for a motivation for realism in truthmaking, I am looking for a way to combine realist intuitions with a plausible theory of truth. What would a plausible truthmaker principle look like then? The usual formulation goes roughly like this:

> (TM) Necessarily, if <p> is true, then there exists at least one entity α such that <α exists> entails <<p> is true>. (Beebee & Dodd 2005: 2.)

The nature of the truthmaking relation, here suggested to be an entailment relation, is perhaps the most controversial part of (TM). Other problems occur when certain truths, such as necessary truths or negative truths are considered. There have been numerous attempts to deal with these problems, but the details of each solution depend, often heavily, on the details of the ontology that one tries to combine with truthmaking. A

somewhat neutral way to address the problems involved with entailment is to replace entailment with (metaphysical) necessitation: in every possible world where the truthmaker for a certain proposition exists, that proposition is true.[99]

I listed some key features of the truthmaker principle earlier and at least some of them would also seem to hold in regard to the general principle that we are now looking for. So, we can for example without much risk of controversy hold that truthmaking is an asymmetrical many-many relation. As Rodriguez-Pereyra (2005: 20-21) suggests, we seem to have the intuition that truth is asymmetrical, and the truthmaking principle corresponds with this intuition perfectly. The way that Rodriguez-Pereyra puts it is that truth is grounded: the truth of a proposition depends on what reality is like, and the relationship between truth and reality is of course asymmetrical, as reality does not depend on the truth of the proposition. He also points out that this by itself does not commit us to realism, for an idealist could just add that reality or the world and the entities in it are not mind-independent (ibid.).

The truthmakers are here taken to be entities of some kind, but it is certainly a matter of debate what kind of entities they might be. I think that answering this question will bring forward the first serious ontological commitments. For a realist, there are several alternatives, such as Armstrong's facts, or, if your ontology allows them, tropes, as suggested in Mulligan, Simons and Smith (1984). There is not much that I can say about the nature of the truthmakers, given that I am not defending any particular theory, but rather the general appeal of the truthmaker principle. However, it seems to me that the apparent complexity of truth would suggest that truthmakers must be spread out in

99 This is the line that both Lowe (2006: 185) and Armstrong (1997: 115) take.

several different categories rather than just one – that of facts for example. This line of thought has also been noted by Beebee & Dodd (2005: 9) and it is exactly what Lowe (2006: 182 ff.) argues for as well.

What we have here is of course still quite a sketchy account, but much more cannot be said without making further ontological commitments. Nevertheless, I think that we have good reasons to think that the idea of truthmaking on a general level is a plausible one. It also seems clear that this idea can be combined with realism in a coherent manner. What should be noted however is that truthmaking is not, or does not have to be, an explanation for our realist intuitions. Perhaps it does increase the appeal of realism, for the explanatory power of the complete theory (realism plus truthmaking) is certainly greater with truthmaking than without it. But as I pointed out above, we have a strong case for realism before truthmaking even enters the picture. Look at it like this: if the relativist's strongest case against realism is realism's inability to deal with truth, as it seems to be according to the Putnam-Dummett-Goodman line of thought, then adopting the truthmaker principle is no doubt the best possible response to this objection. In the light of this, the possible applicability of the truthmaker principle to the relativist's ontology merely corroborates the realist's case, as then we have some common ground in regard to this particular issue. How can we decide between these ontologies then? Well, I think that in virtually every other regard, realism is no doubt the winner.

11. Logic and Metaphysics

The purpose of this chapter is to examine what logic is grounded in, its metaphysical status. In other words, in virtue of what are logical truths true? The relevant candidates for the grounds of logic include language, grammar and reality. I will defend the view that logic is, ultimately, grounded in reality. In what follows I will repeatedly refer to the relationship between logic and metaphysics, which is one of my central concerns. In fact, what I attempt to establish is that logical principles, such as and especially the law of non-contradiction (henceforth LNC), are metaphysical principles rather than logical principles. What this means, exactly, will be clarified in due course. I will proceed as follows. First it will be examined whether some kind of a consensus can be reached about what a discussion about the status of logic should involve. It will be suggested that if we can agree on certain fundamental logical principles, then we can settle the debate by examining what these fundamental principles are grounded in. The law of non-contradiction seems to be the best candidate for such a principle, and the metaphysical status of LNC in particular will receive attention. It will be argued that LNC is the best candidate for the most fundamental principle of our reasoning. But to establish this, it is also necessary to address the challenge from dialetheism, due to Graham Priest and others.

The relationship between logic and metaphysics must be one of the following. Firstly, we can hold that logic and metaphysics are wholly separate. In this case there would be no direct exchange between them, although presumably we could still argue about which one is a more fundamental discipline. Secondly, we can hold that logic has

implications for metaphysics, or even that metaphysical questions are reducible to questions of which logic to adopt (cf. Dummett 1991). And thirdly, we can hold that logic has some kind of a metaphysical basis which implies that your logic does, or should, reflect your metaphysics. My sympathies lie with the third option, but we should briefly consider where the other routes might take us. Even if there indeed is a connection between logic and metaphysics, it seems that there is no straight-forward way to determine the exact nature of this connection. It is very likely that we have a number of different compatible metaphysical and logical systems rather than a simple one-one relation. The upshot of this is that at the very least, we should settle the question of how much common ground there is between the different possible approaches. For instance, can we agree upon some fundamental laws of logic or logical principles which are common for all the different approaches? If we could, then settling the nature of this particular principle should serve as a reliable guide towards the metaphysical status of logic.

A strong candidate for a principle like this is LNC, but mainly because of the work of Graham Priest (1998, 2006), even this has become controversial. In the light of these problems, the first option becomes increasingly attractive: maybe there is no connection between logic and metaphysics: perhaps the debate over different kinds of logics has no bearing whatsoever on metaphysics and metaphysics has nothing to do with logic. Indeed, the lack of interest that many logicians and metaphysicians show in examining the connection between the disciplines further motivates this move. But we should be alarmed by this, for on what, if not metaphysics, is logic based? Language and grammar are the usual candidates, but then the further question about the nature of language and

grammar needs to be addressed.[100] It seems then that we are faced with some very fundamental problems before the discussion can even get started. I will try to make my way through these issues.

There is plenty of literature about the status of logic in terms of the a priori/a posteriori distinction, the revisability of logic and related issues (e.g. Field 1996, 2000, 2005; Boghossian 2000, Shapiro 2000, Bueno and Colyvan 2004, Resnik 2004). This discussion is of less relevance to us than it might initially seem, partly because even the notion of 'a priori' is often seriously misconceived, as we recall from chapter eight. Additionally, it is not the epistemic status of logic that is our main interest here. What we need to examine is the metaphysical status of logical principles, albeit naturally the question of their a priori status and revisability is of some importance as well.

My view is that logic is indeed an a priori discipline, but it is important to remember that the apriority of logic does not rule out the possibility of it being revisable.[101] Others (Field 1996, Boghossian 2000, Shapiro 2000, Resnik 2004) have argued against the revisability of logic on the grounds that we would always need to have at least some core principles which are indefeasible, on pain of infinite regress. The idea is perhaps appealing, and may work well against the Quinean idea of the web of belief of which logic is one revisable part (cf. Shapiro 2000). Apriority, nevertheless, is compatible with revisability. A detailed discussion of these issues is not necessary here, I merely wish to point out that the debate over the apriority of logic in terms of its revisability is clouded with conceptual issues.[102]

100We will return to this issue in the next chapter.
101As should be clear given what was established in chapter eight.
102See Bueno and Colyvan (2004) for an account against apriorism in logic – the debate is exactly over

Of course, there *is* a genuine problem about whether logic is empirically revisable. Field (2000), among others has argued for the empirical indefeasibility of a priori knowledge, including logic, but there are opposite views in the air (cf. Bueno and Colyvan 2004). For one thing, quantum mechanics has been suggested to provide empirical information that challenges some of our most basic logical principles, even the law of non-contradiction (ibid., see also Putnam 1978). Indeed, I do not see why it could not be *possible* for empirical information that is inconsistent with some of our logical principles to emerge. Quantum mechanics hardly constitutes a sufficient case against LNC though – I will elaborate on this later.

Before we can advance further, it must be settled what the appropriate formulation of LNC is. For my purposes, the typical formulation 'not both P and not-P', is unsatisfactory. In fact, it could be said that this formulation presupposes that the principle is a logical one. We would be better off with one of Aristotle's many ways to formulate LNC, such as 'the same attribute cannot at the same time belong and not belong to the same subject in the same respect' (Aristotle 1984b: 1005b19-20). When put like this, the principle appears considerably deeper, as it clearly states a restriction that concerns *things* rather than, say, sentences.

At its simplest, the metaphysical interpretation of LNC amounts to this: the entities of mind-independent reality are plausibly governed by some sort of principles (as otherwise there would be no order in our experience of them), that is, there are some constraints as to what kind of properties a certain kind of entity can and can not have and further, some of these properties are mutually exclusive. For instance, a particle can

revisability.

not have both a positive and a negative charge at the same time, or an object can not be both green and red all over at the same time. It seems that reality just *is* such that it conforms to the principle of non-contradiction. The different formulations of the principle are merely attempts to express this orderliness in a simple manner. Note that semantic paradoxes such as the Liar do not threaten LNC as a metaphysical principle. That is, any arbitrariness or vagueness over language has no bearing on LNC understood as a metaphysical principle. A counterexample to the metaphysical version of LNC could only be a true contradiction in the world.

To get into the bottom of what LNC understood as a metaphysical principle amounts to, consider the previous example in more detail: a particle can not have both a positive and a negative charge at the same time. The labels 'positive' and 'negative' are admittedly arbitrary, especially when we are trying to define a fundamental metaphysical principle, but perhaps we can clarify this. We know that, for instance, electrons and protons have an electric charge of the same size, but with the opposite polarities: electrons have a 'negative' charge and protons a 'positive' charge. Now, when we say that a particle can not have both of these charges at the same time, we can think of this as a restriction in terms of the implications that an electric charge has. The most important of these implications is that like charges repel and unlike charges attract. Setting aside for the moment what electric charges actually *are*, it seems that to produce the effects that they evidently do, there must be two mutually exclusive types of them, i.e. the negative and the positive charge. This is because the most important causal powers associated with electric charges emerge due to the fact that like charges repel and opposite charges attract – a feature that requires polarity. If we think of the electric charge as a property

of an entity, say an electron, it is a fully *exhaustive* property, for the charge can be of exactly one type and this exhausts any further qualifications. Of course, this is not to say that the charge could not change (both in strength and polarity), just that at any given time it must be of exactly one type. All of this, you might think, is obvious; it is obvious because we are used to things that conform to LNC. What is not obvious is why they do so.

The metaphysical reading of the law of non-contradiction suggests an answer to the question why our observations conform to the principle: because LNC is a valid metaphysical principle concerning the world. So, let us trace the route from our observations of the world to the mind-independent reality which supposedly conforms to LNC. Basically, you can insert any kind of metaphysically realist ontology here, it makes little difference for my purposes. What we need to agree about is that whatever the organisation of the entities in the world is, it does not violate LNC. I will try to be as neutral as possible in what follows, but feel free to translate what I say into your preferred ontology.

Our observations suggest that an electric charge is some sort of a property that a particle can have in two different varieties: the positive and the negative. What suggests that this is a universal (actual) condition – apart from the fact that we have never observed a particle having both a negative and a positive charge at the same time – is that the causal powers associated with electric charges could not arise if the same particle could have both charges at the same time.[103] For instance, atoms would not hold together. It

103Perhaps it should be mentioned that although every atom has, in a sense, a negative and a positive charge which cancel each other out, this is hardly a counter-example: atoms are not fundamental particles and we know that the charge of electrons on the one had and the charge of the quarks that

might be that this is not a metaphysically necessary condition for the existence of the mentioned causal powers, but all that matters here is that in the actual world electric charges have the particular causal powers that they have and they emerge because of the polarity of the charges. In other words, in the actual world the laws of physics *require* that electric charges have polarities – otherwise this particular macrophysical construction would not be possible. The law of non-contradiction, if it is valid, is perhaps the most fundamental condition of this type.

So far it appears that the case against the metaphysical reading of LNC and consistency in general has not even been adequately characterised. We need to keep in mind the three ways of understanding the relationship between metaphysics and logic that I listed in the beginning of this chapter. It is crucial that this relationship is examined, as a lot of what follows depends on it. Fortunately, the best known advocate of contradictions has recently clarified his position in regard to this particular issue (cf. Priest 2006).

Given this understanding of LNC, let us see if it is possible to accommodate violations of the principle in our ontology. There have been at least half-hearted attempts to do this.[104] This is not a very typical topic in the dialetheist literature, as most of it is concerned with semantic paradoxes, which are not at issue here. However, a recent paper by Edwin Mares (2004), where he distinguishes between semantic and metaphysical dialetheism – the latter stating that there are true contradictions in the world – inspired a reply from Graham Priest:

protons consist of on the other hand are responsible for the (neutral) charge of atoms. In any case, we can say that no *fundamental* particle can have both a negative and a positive charge at the same time.

104See Priest (2006: 300) and Beall (2000, 2004).

> To be a metaphysical dialetheist, one must suppose that it makes sense to talk about reality itself, as opposed to what is said about it. That is, one must suppose that
>
> **1.** There is an extra-linguistic reality
>
> Next, this reality must comprise things that are propositional in some sense, or the talk of its being consistent or inconsistent would make no sense. [...] So we must have that
>
> **2.** Reality is constituted by facts
>
> or by fact-like entities such as objects-cum-properties. Even given **2**, there is still nothing consistent or inconsistent simply in a bunch of facts. There must therefore be more to the matter than this; there must be something within the structure of facts that corresponds to negation in language. It must be the case that
>
> **3.** There are polarities within facts
>
> That is, if f is a possible fact, say one that would make α true, there must be a corresponding one, f', that would make $\neg\alpha$ true. (Priest 2006: 300.)

As you can see, Priest puts forward a sketch of an ontology of facts and suggests that this ontology could accommodate contradictions. The crucial premise is the third one, namely the claim that there could be negative truthmakers. Priest, though, does not seem to be very interested in defending this sort of a picture and adds that his *In Contradiction* is, in effect, neutral in regard to the semantic/metaphysical dialetheism distinction. Be that as it may, the ontological options for accommodating contradictions are scarce. J. C. Beall (2000) has tried to make a case for an ontology roughly like the one Priest suggests by defending negative truthmakers. However, this looks very much like an *ad hoc* case, regardless of Beall's courageous defence: to uphold the idea of truthmakers having polarities, Beall appeals to physics, because we have polarities there as well. But this is hardly relevant, for polarities of charged particles are observable by empirical means, whereas polarities within truthmakers have no such grounding. In fact we have just seen that a crucial feature of the polarities of charged particles is that they

introduce new causal powers, whereas negative truthmakers, at least in Beall's ontology, merely serve as a way to accommodate contradictions. So, we clearly have a classic *ad hoc* case at hand and an appeal to ontological parsimony should be quite enough to rid us of the polarity of truthmakers.

Of course, were the dialetheist to offer some further evidence suggesting that there really are contradictions in the world, we might have to start considering feasible strategies to accommodate the idea in our ontology. Perhaps the best candidates for violations of LNC are paradoxes concerning change (cf. Priest 2006: ch. 11-12). Not every sort of change will do though. Consider our previous example: if a charge were to change from negative to positive, the instant when this change occurs is not such that there is both a negative and a positive charge present, but rather no charge at all. But Priest, regardless of his supposed neutrality in terms of the semantic/metaphysical dialetheism distinction, has discussed a number of other examples (concerning change and other matters) which suggest that there might be contradictions in the world, the best known of these is no doubt Zeno's arrow paradox.

Priest starts by considering a number of everyday examples involving change and time. One of these concerns writing a word on a paper with a pen: the pen touches the paper while the word is being written, and is lifted at the end of the word. Now, if motion is continuous, there will be an instant at which it is indeterminate whether the pen touches the paper or not, namely the instant at which the pen is lifted (Priest 2006: 160). Since we do not seem to have any reasons to decide whether the pen is touching the paper or not at this instant, we might be better off if we said that it both touches the paper and

does not touch the paper – alas, we have a contradiction in the world. But this does not follow: the example relies on vague terms to start with, namely 'touching the paper' is vague. This is somewhat easy to fix though, in fact Priest does it himself: '[T]here is a last point at which the electrical repulsion between my pen and the paper is equal to the weight of the pen, but no first point at which this is not the case' (ibid.). Although Priest has his concerns about this, it would appear that the paradox can be resolved; we can define 'touching the paper' in terms of the electrical repulsion between the pen and the paper (or something similar), which hardly leaves space for a contradiction in the world – at best there is confusion over our language (and I certainly admit this). But Priest attempts to demonstrate that the problem at hand does not concern vagueness:

> I am in a room. As I walk through the door, am I in the room or out of (not in) it? To emphasize that this is not a problem of vagueness, suppose we identify my position with that of my centre of gravity, and the door with the vertical plane passing through its centre of gravity. As I leave the room there must be an instant at which the point lies on the plane. At that instant am I in or out? Clearly, there is no reason for saying one rather than the other. (Priest 2006: 161.)

Indeed, once again this is not a problem of vagueness *in the world*, but it seems to me that it is, again, a very obvious example of vagueness concerning language. This time the question is over our definition of 'being in a room' – do we wish to define it inclusively or exclusively in regard to the doorway? Whatever we do with cases like this, I do not see how they could be examples of contradictions in the world: the concept of a 'room' is anthropocentric and because of that it will always be subject to vagueness concerning language. The reason for us lacking a specific definition for 'being in a room' is that in ordinary contexts we never need to define it as accurately as Priest here

requires. However, if we needed to, we could very easily do that: we certainly do when we consider whether a football is in the goal or not.

We still have not discussed Priest's most celebrated example: Zeno's arrow paradox. It must be noted here that much of the thrust of Priest's arguments rely on his particular, intrinsic view of motion, which is Hegelian in spirit.[105] Priest argues against the so called cinematic account of motion, according to which, say, Zeno's arrow simply occupies subsequent points in space at different times – this is all there is to its motion (cf. Priest 2006: 174). According to the cinematic account of motion at each instant of its journey the arrow is at rest and thus makes no progress, but the sum of these instants can nevertheless be greater than zero, given a sufficient number of instants (approaching infinity). Unsurprisingly, Priest is not happy with this.

Clearly, what is at issue here is the nature of motion (and time) and if Priest is right, the nature of motion is fundamentally contradictory. But we do have a number of other ways to go here, albeit all of them have their problems.[106] Aristotle's preferred solution was to deny that time consists of indivisible instants (Aristotle 1984b: 239b5-9). If the smallest instant of time is non-zero, as it apparently has to be if time does not consist of indivisibles, then motion is possible during this instant and Zeno's arrow paradox can be resolved. Another possibility (also originating from Aristotle's ideas) is to deny that there are velocities at instants - this view was later developed to the so called 'at-at' theory, which is effectively what Priest calls the cinematic account of motion (cf. Arntzenius 2000). According to the 'at-at' theory, motion can be reduced to different

105See Mortensen (2006) for further discussion.
106For a survey of possible resolutions and the problems they face, see Arntzenius (2000).

locations at different times. This, however, seems unsatisfactory, and it is no wonder that Priest wishes to resist the account. But, as Lowe (2002: 302) has pointed out, even though the measurements that we make concerning the velocity of an object at a time are of course made in terms of the locations of the object at different times, this does not mean that the velocity of an object fully reduces to the locations that it occupies at different times.

The fundamental problem, then, seems to be the idea of instantaneous velocity. A third way to deal with this is to understand motion as an intrinsic property, which is not reducible to the combination of times and locations occupied by the moving object; Arntzenius (2000) calls this the 'impetus theory'. According to this view, motion can be understood as a 'directional tendency' (cf. Lowe: 243), that is, there is a difference between a stationary and a moving arrow even at an instant: a moving arrow has the tendency, the potential, if you like, to move in a certain direction. Instantaneous velocity is thus something like a dispositional property (cf. Lowe 2002: 302-303; see also Tooley 1988). Arntzenius (2000: section 4) discusses a number of objections to this view, but concludes that the only one that holds is an argument from ontological parsimony. Namely, to uphold the impetus theory we would have to accommodate these 'intrinsic velocities' in our ontology, as well as ensure that there is correspondence between the 'intrinsic velocity' and velocity understood as the ratio of the distance covered by an object to the period of time it takes for the object to travel that distance.

It is impossible to discuss all the implications of these different views concerning motion here, but for my purposes it is sufficient to demonstrate that the picture is

certainly more complicated than a choice between the cinematic account of motion (or the 'at-at' theory) and Priest's revised Hegelian account of motion, contrary to what he seems to suggest. Naturally, Priest's account of motion faces its own problems; if nothing else, then at least the requirement of accommodating contradictions in our ontology, the difficulties of which I have already discussed. To this extent, Priest's account of motion and the impetus theory share the same problem, but, at least arguably, the changes required by the impetus theory are less fundamental than the ones required by Priest's theory. Accordingly, if we acknowledge the requirement for ontological parsimony (and set aside any other problems that Priest's account of motion might encounter), it would already seem that the impetus theory is preferable.

Finally, I should very briefly consider the challenge that quantum mechanics is sometimes suggested to raise for LNC. I should note that Priest himself does not rely on arguments based on quantum mechanics very heavily, although he does entertain a rather speculative theory in terms of the possible explanatory work that the Hegelian account of motion might be able to do in regard to the uncertainty concerning a particle's location at a time, as suggested by certain interpretations of quantum mechanics (cf. Priest 2006: 180-181). However, arguments from quantum mechanics which seem to suggest that there could be true contradictions in the world have been offered by others (cf. Bueno & Colyvan 2004). It is not necessary to go into the details of quantum theory here, for the details are controversial in any case. What matters is that there are interpretations of quantum mechanics which imply that the reality might be in violation of the law of non-contradiction, such as the Copenhagen interpretation, and there are ones which imply the opposite, such as the Bohmian interpretation. In

other words, the jury is out on the interpretation of quantum mechanics and at the moment any arguments relying on either interpretation are hardly conclusive. Furthermore, even if the correct interpretation is on the lines of the Copenhagen interpretation, this does not necessarily mean that the law of non-contradiction is refuted – certainly not in any universal sense.

I do acknowledge the theoretical fallibility of even such fundamental principles as LNC, but quite possibly, even if the characterisation of the principle suggested above fails, a weakened version of the principle might still hold. This seems very plausible because the macrophysical world clearly *is* consistent, thus, whatever the story about the microphysical involves, one of its implications is that we have consistency on the level of the macrophysical, that is, the law of non-contradiction is true *at least* in the sense that it is implied by the deep structure of the world, even if it would emerge from inconsistency. In a somewhat similar manner we still rely on Newtonian mechanics in most connections, even though, strictly speaking, it is false. But all this is speculative; I have demonstrated that all the arguments against the validity of the law of non-contradiction understood as a metaphysical principle based on current information are dubious at best. Unless further information emerges, I contend that there are no true contradictions in the world.

If the account of the metaphysical reading of LNC that I have suggested is correct, we finally have the means to examine the broader implications for the metaphysical status of logic. What we have here is, to use Michael Resnik's (1996) terms, a realist monist view of logic. As such, it is Fregean in spirit, but it is important to keep in mind that my

account is tightly interwoven with fallibilism. So yes, my contention is that there is a 'One True Logic', but it might be very hard, or impossible, to ever accurately formulate it. Here I wish to take no stand as to what *is* the true logic, my point is only that it must reflect reality, there must be some metaphysics to back it up. The same naturally applies to language, in fact, it is reasonable to suppose that language is largely grounded in the very same features of reality as logic is, as we will see in the next chapter. This correspondence is by no means free of errors though, which is exactly why tracing the route back from language or grammar to logical syntax (and even to ontological considerations) is a bad idea and leads to infeasible results. The Liar and other paradoxes are a good example of this: taking them too seriously leads to rather wild theories, such as metaphysical dialetheism, while they only imply semantic dialetheism.

Perhaps it is reasonable to ask how, exactly, should we go on about doing logic according to the current account. Well, by doing metaphysics! This is not to say that there could not be value in pursuing specific logical problems. As I acknowledged above, we have a wide range of internally consistent, interesting logical frameworks and many of them have important applications. However, we must be wary of any *metaphysical* implications that someone might try to derive from these logical considerations. Deontic logic, say, might very well be worthwhile, but to draw implications concerning morality from it might be a serious mistake, as the many paradoxes that have been formulated suggest (see for example Chisholm 1963). To this extent, logic and metaphysics are not continuous. Accordingly, if your desire is to use logic as a guide to metaphysics, you must start from metaphysics. On a more positive note, much work in this regard has already been done. Above I have defended the law of

non-contradiction as one of our core logical principles. Its validity strikes most people as the single most certain thing in the world. We saw that even Priest, the best known proponent of contradictions, has very little to say about true, *metaphysical*, contradictions. We cannot even imagine what it would be like for there to be one. Maybe quantum mechanics gives us a way to approach the idea, but clearly we do not yet understand what is happening at the quantum level. Is it not more likely that the lack of sufficient information has resulted in yet another linguistic blunder? Be that as it may, one thing is clear: in issues metaphysical, metaphysics should always have priority over logic.

I should perhaps, very briefly, consider how my view fits in with the recent discussion about logical pluralism (cf. Beall and Restall 2006). In a somewhat trivial sense, I have no objections to the idea that we could be pluralists about logical truth. This is the sense that I have already mentioned, i.e. we can have quite different, even incompatible logical systems, as long as they are consistent within a given framework. These may be useful because they have interesting applications, or they may be rival systems and claim to reach a more accurate correspondence with reality. However, if what I have said is correct, only one of them can be true in a deeper sense, insofar as they are incompatible. The others can be true only in the sense that Euclidean geometry is true, that is, within a given framework. I have no quarrel with logic done within a framework like this, but the logical systems most interesting from a metaphysician's point of view are certainly the ones which claim universal application. Thus, we should be careful with the use of the notion of 'logical truth', for if it is taken to imply truth in a logical system, *any* logical system, then it has little bearing on truth in a metaphysically deep

sense (cf. Beall and Restall 2006: 100-102).

So, if metaphysics is about mapping the fundamental structure of reality, then logic, as I have described it, is about representing the results formally. When we reason about, say, matters of possibility and necessity, we are interested in the modal constraints that the structure of reality imposes on different kinds of entities. Modal logic is valid only insofar as it reflects these constraints. The fact that we can prove the existence of God in S5 is not a very important result if we do not have good reasons to believe that S5 is the correct way to formalise the modal constraints in the world. A very natural idea about the different systems of modal logic is that they reflect the different uses of 'necessity' and 'possibility' in our language. But this, again, leaves the question about modality *in the world* completely unanswered. Surely, we must have some kind of a theory of modality to be able to settle the status of different modal logics. Given the picture suggested above, there can be only *one* way that matters stand in the actual world. So we cannot settle the question merely with the help of formal considerations. No matter how neat your system might be, there has to be something to back it up. Yet, the literature is exhausted with examples which lack any arguments beyond a given formal framework. I have in mind especially arguments like those in Williamson (2002), which almost systematically fail to go the full length of defining the initial presuppositions. For instance, Williamson argues for the necessary existence of merely possible physical objects, refuses to further discuss what kind of things merely possible physical objects are (2002: 19) and gives us no reasons whatsoever to accept the radical ontological implications that he draws from his logical framework. To pursue a project like this, one should first put forward an ontology that can accommodate these merely possible

physical objects – not derive them from an arbitrary logical framework.

In conclusion, there seems to be a desperate need for meta-logical considerations regarding many of the popular topics of contemporary logic. At the very least, the problems concerning the grounds of logic that were raised above have to be addressed. My suggestion is that logic is grounded in metaphysics. This appears to be the only plausible way to deal with the obscure challenges to classical logic that seem to be growing in popularity.

12. Semantics and Metaphysics

Already over 30 years ago, Hilary Putnam (1975c) and Saul Kripke (1980) started a new phase in the philosophy of language and semantics. The externalist framework that they created and which is now so familiar to us was an important step in the philosophy of language and in many ways helped us to step away from the shadow of Wittgenstein and to do something new. It was a healthy inquiry into some of the most basic questions about the relationship between language and philosophy, or semantics and metaphysics. However, although I greatly sympathise with much of this project, it seems to me that the implications of Putnam's and Kripke's work are often misinterpreted.

Putnam's collection of papers, *Mind, Language and Reality* (1975a) starts with a paper entitled 'Language and philosophy' (1975b), where he contemplates about philosophers' interest in language. Especially interesting for my purposes are his remarks about using semantical methods as a guide to 'the Great Questions of philosophy', i.e. metaphysics. In other words, is semantics a guide to metaphysics? Putnam (p. 2) attempts to reconciliate between the 'layman' who thinks that language is irrelevant for the Great Questions and the contemporary (analytic) philosophers who generally agree that philosophy of language is of utmost importance and could perhaps act as a guide to metaphysics as well. The resolution that he offers is of course the externalist framework:

> (a) no set of mental events – images, or more 'abstract' mental happening and qualities – *constitute* understanding; and (b) no set of mental events is *necessary* for understanding. In particular, *concepts cannot be identical with mental objects of any kind.* (Putnam 1975b: 7.)

The upshot is thus that there is a middle way: semantics may be of *some* help when pursuing metaphysics. But how does this work, exactly? Well, possessing a concept, according to Putnam (1970, 1975a, 1975c), is knowing how to use it, grasping the stereotype – not a mental image. Furthermore, at least in the case of natural kind terms, there seems to be an intimate connection between concepts and the essences or natures of the kinds that the terms refer to. Ordinary speakers might not be able to fully grasp this connection, but since we have experts, scientists who *know* what the deep structure of the kinds in question are, we can consult them when unsure. We have all learned this story, but what are its implications for the relationship between semantics and metaphysics? On the face of it, the situation seems to favour the view that language is a guide to the Great Questions of philosophy, at least insofar as we have experts who make sure that our stereotypes capture the deep structure of the entities that our concepts refer to. But it would be very dangerous indeed to think that, say, grammar reflects the structure of reality. Just consider all the linguistic paradoxes, such as the Liar. There are of course problems with the group of natural kinds as well; the question seems to be whether the Kripke-Putnam semantic framework is committed to essentialism or not. And many (cf. Mellor 1977, Salmon 2005, Mackie 2006) seem to think that it is not. I fully agree with this, it would be incredible if a theory of semantics constrained our metaphysical choices.

In fact, I think that the whole setting of the question is misguided: there should be no controversy over whether language is a guide to metaphysics – the question is rather to what extent is our language restricted by metaphysics. Clearly, any connection between language and metaphysics will be loose, as we often say things that make very little

sense, but arguably there must be *something* that language and grammar are based on, and in what follows I will demonstrate that this basis is metaphysical.

The idea of language being a possible basis for many philosophical problems and our rational activities in general has been noted in passing in many of the preceding chapters (and will once again be discussed in the next one), and it is often the first objection raised by the relativist. For instance, the Kantian line of thought that our system of categorisation is based on a certain linguistic or mental framework, which might be different for rational agents other than humans, is regularly contrasted with the Aristotelian line that I have been defending. It is difficult, if not impossible, to offer a conclusive argument for one or the other, but at least we can see how the different approaches fare in terms of specific examples. Given the enormous attention that the status of natural kind terms has received, perhaps this particular discussion would be appropriate for our survey. For the sake of brevity, I will here focus primarily on Putnam's discussion of the matter.

Natural kinds are both semantically and metaphysically a problematic class: they seem to elude simple, and sometimes even complicated definitions, yet intuitively they should have well-defined boundaries. Putnam introduced many of his familiar ideas about natural kind terms already in the paper 'Is Semantics Possible?' (1970). One of the first things that he points out is that although natural kinds such as lemons have 'defining characteristics', merely listing these characteristics can never be enough to *define* natural kinds, because there may be, for instance, abnormal members of the kind, such as green lemons (p. 140). Plausibly, the defining characteristics of natural kinds emerge

because of some more fundamental features of the kind in question, what Putnam calls the 'essential nature' of the kind (ibid.). The problem that remains is that it is science which determines what these more fundamental features in fact are, and science is a fallible discipline. In other words, our beliefs concerning the most fundamental features of natural kinds are subject to revision. Now, clearly, the *essential* features themselves cannot change, but we might have gotten our story about them wrong. Thus we have no means to reliably fix our conceptual scheme according to the genuine essential features of natural kinds, yet we generally think that we use words like 'lemon' and 'tiger' accurately and that we *do* grasp the genuine essential features of the kind in question. This story is quite familiar to us and its upshot is as follows:

> Even if cats turn out to be robots remotely controlled from Mars we will still call them 'cats' [...]. Not only will we still *call* them 'cats', they are cats [...]. But the fact that a term has several possible uses does not make it a disjunctive term; the mistake is in trying to represent the complex behaviour of a natural kind word in something as simple as an analytic definition. (Putnam 1970: 143.)

This is the lesson of semantic externalism, but Putnam still needs to reconcile it with the ordinary usage of natural kind terms. The crucial idea here is to associate stereotypes (the characteristics of a normal member of a particular kind) with the correct natural kind. And here, new problems emerge. Consider 'aluminium' and a qualitatively indistinguishable metal 'molybdenum'. Putnam (1970: 150 ff) asks us to imagine a colony of English-speaking people on a spaceship, travelling towards a distant planet. None of them can recall the atomic weight or any other defining characteristics of aluminium or molybdenum. They have both these metals with them and they guess

which one is which, incorrectly, as it happens. What can be done to preserve the 'normal' meaning of aluminium? There is not really anything that can be done if we want to maintain a purely conventionalist account: apparently the convention has changed within this colony.

However, Putnam suggests that with the help of a test the colonists could be guided towards the normal use of 'aluminium'. This test is supposed to fix the extension of 'aluminium', thus: 'Meaning indeed determines extension; but only because extension (fixed by *some* test or other) is, in some cases "part of the meaning" (p. 151).' I take it that the test in question is some kind of a scientific test. And there has to be a test, as clearly the stereotype by itself does not suffice to fix the extension of natural kinds. But Putnam continues: 'Nothing normally need to be said about the extension, however, since the hearer knows that he can always consult an expert if any question comes up' (ibid.).

This suggests that no one else apart from experts can grasp extensions, no one else except experts really knows how to use language correctly; indeed, no one else can have knowledge of essences. This seems to leave us in quite an awkward situation, for an expert on aluminium is probably not an expert on cats or whales, and an ordinary speaker is presumably not an expert on anything. The fact that we can consult such experts hardly gives us much comfort, for it would be quite a task to find one whenever we want to make sure that we are using natural kind terms correctly. Naturally this is not what Putnam had in mind, just the possibility of doing this is sufficient for him. But it seems that it gives us unreasonable liberty: we do not check our stereotypes very

often, in fact, how are we even able to know when they fail?

The colony of English-speakers was unaware of its mistake, but if we think about it, perhaps it was not a very serious mistake. It is important to note here that everyone in the colony already knew that the kind aluminium actually exists. Furthermore, and this is what Putnam does not take into account: they all had grasped the essence of the kind aluminium (given that they knew what aluminium is). That is to say that everyone *can* grasp essences, all rational human beings are capable of doing this, not only experts. What *is* (mostly) the task of experts, is to verify (or falsify) our initial classificatory scheme concerning natural kinds. Often this requires a lot of work, but once the work is done, anyone who understands the notion 'natural kind' certainly understands what natural kind terms refer to, namely the deep-structure of the kind – its essential features. Thus, in one sense, the members of the English-speaking colony were able to use the concept 'aluminium' correctly at all times, because they knew that it has been verified that the natural kind aluminium actually exists. They failed simply in ostension: they pointed to the wrong material.

To make the case a bit more substantial, suppose that no one in the colony (or, indeed, on Earth) has ever heard of molybdenum, and they think that all the aluminium-like metal they have encountered is aluminium, but some of it is in fact molybdenum. This would perhaps be a mistake of a more serious kind, but in no way more disastrous for the account at hand, because we know that the empirical story is always subject to revision. If it turns out that what we think was aluminium is sometimes molybdenum, then the class of natural kinds would simply have a new member: molybdenum. But just

the fact that we sometimes treated molybdenum as if it was aluminium does not mean that we had not grasped the essence of aluminium. In fact, this is ontologically quite uninteresting, and linguistically too. A scientist might be enthusiastic over a finding like this, but it gives us no reason to modify our ontology or semantics (except, of course, in the sense that we would need a word for the other aluminium-like metal: molybdenum).

Let me try to explain how the account I am sketching differs from Putnam's. What Putnam emphasises, especially in 'The Meaning of "Meaning"' (1975b), is the social aspect of language, that is, extension is partly determined socially. This is already implicit in the use of 'stereotypes', which were introduced in his 'Is Semantics Possible?'. The problem with stereotypes is that they tend to be inaccurate, and in fact contingent. For instance, we associate all kinds of stereotypes with water: the stuff that comes from the tap, rains from the sky and fills the lakes. However, hardly any of this is *essential* for water. Of course, what is usually considered to be an essential feature of water is that it is H_2O; and being able to distinguish water from liquids with different chemical compositions, say XYZ, is something that Putnam associates with expert speakers. This is of course right because only experts can actually verify that water is H_2O; only they know it by first hand experience. Consequently, Putnam's case for the social aspect of language is based on the fact that expert speakers give us new information about the world. All this may sound fine, but it underestimates the skills of normal speakers.

Consider tigers. My dictionary describes tigers as very large solitary cats with a yellow-brown coat striped with black, native to the forests of Asia. Most people would be quite happy with this definition. But scientifically, as well as in terms of the deep structure of

natural kinds, it is clearly not a satisfactory definition. We would rather have to say something about the genetics of tigers. It should also be mentioned that there are eight different tiger subspecies (of which three are extinct) and so on. Again, this is something that expert speakers would tell us. Indeed, it seems to me that we cannot talk about *anything* (or at least about any natural kinds) without the help of these so called experts, because in the end, natural kind terms always reflect the scientific framework. But I do not think that this means that only expert speakers know what they are talking about.

It seems to me that the semantics of natural kinds follow a very simple pattern. Putnam has outlined this pattern, but his account does not adequately explain how the expert speakers differ from ordinary speakers. Like I noted above, I do not think that expert speakers have a privileged access to natural kinds. Non-experts might be satisfied with the dictionary definition of 'tiger', which is more or less a description of what tigers look like, but even the dictionary definition contains one crucial word: 'cat'. 'Cat' is of course another natural kind term, which connects tigers with a broader classificatory framework. What I want to say here is that every speaker, be it an expert or a normal speaker, relies on the same underlying structure, the same classificatory framework, when trying to put tigers in the right place. Putnam hints towards something like this when he talks about semantic markers:

> Not only do such features as 'animal', 'living thing', 'artifact', 'day of the week', 'period of time', attach with enormous centrality to the words 'tiger', 'clam', 'chair', 'Tuesday', 'hour'; but they also form part of a widely used and important *system of classification*. The centrality guarantees that items classified under these headings virtually never have to be reclassified; thus these headings are the natural ones to use as category-indicators in a host of contexts. (Putnam 1975: 267-68.)

Putnam derives the idea of semantic markers from Fodor and Katz, and integrates it with his own idea of stereotypes. For Putnam, this is only a small clarification, but for my purposes, this is the central part of the theory.[107] When someone asks what a 'tiger' is, I think that the question is really 'to which locker do tigers belong?'. Some stereotypes associated with tigers, such as 'carnivore', are in fact very heavily loaded with categorical information. For when I turn to my dictionary, the word 'carnivore' is explained to be associated with mammals of the order Carnivora, which comprises the cats, dogs, bears, hyenas, weasels, civets, raccoons and mongooses. So, the reference-fixing of natural kind terms clearly includes two stages:

1. the 'classification', i.e. to which 'locker' the natural kind term *could* belong to

2. the scientific account which verifies the connection between the most plausible potential 'locker' and the deep structure of the natural kind

When we refer to tigers, we always aim to refer to the deep structure, the actual 'locker' that the natural kind 'tiger' belongs to.[108] The scientific explanation associated with that 'locker' gives us the details and makes sure that our initial classification corresponds with the actual categorical structure of reality. The latter part is, as has been noted, subject to revision. Accordingly, something like tigers turning out to be robots would not be disastrous for the picture. Indeed, the word 'tiger' would, at least at first, still refer also to the potential cat-like animal, although eventually this convention might change. Nevertheless, the revisability of the empirical verification is built in the framework.

107I should perhaps note that my point only concerns natural kinds, not things like days of the week.
108Putnam (1990: 62-63) has expressed some sympathy towards this sort of view.

The upshot of this account is that the semantics of natural kind terms are fundamentally linked with the ontology of natural kinds. But it is important to see that the order of explanation is not from semantics to essentialism concerning natural kinds, but rather from essentialism to this particular semantic framework. That is, we classify things into natural kinds *because* nature is in fact organised according to a certain categorical structure. This does not mean that our conceptual framework *accurately* corresponds with the actual categorical structure, but what *is* guaranteed, due to the self-correctiveness of science, is that slowly our framework approaches the actual structure of reality. Putnam's story about these matters is very much on the right lines, but I hope to have made it clear how we should develop it. Firstly, both normal and expert speakers rely on the very same classificatory framework, and secondly, the most important features of this framework can be reduced to matters of ontology. With these revisions in place, it appears that our understanding of the semantics of natural kind terms is in good shape.

If the account I have sketched is correct, we have a compelling case for the priority of metaphysics over language in at least one case. It is plausible that this is a proof of a more general dependency relation. As Putnam noted in the previous quote, a central feature of our language is that it is replete with systems of classification. My opponent would claim that the different classificatory systems that we use, even ontological ones, are based on language. But what is language based on? Surely there would be natural kinds and other kinds of entities even without language – without any rational agents whatsoever. To say that the structure of reality is dependent on us talking or thinking about it is an incredibly arrogant and anthropocentric claim. If it is true, then how did

language originate?

Perhaps the only way to uphold the thesis that language has a fundamental status which does not reduce to anything else is to adopt the idea suggested by Chomsky (1965), namely that humans have an innate universal grammar. Obviously this is a rather controversial idea as well. The idea of a universal grammar is not the problem, in fact the common origin of the various human languages can very easily be explained on the lines of what I have suggested above. But to postulate that the universal grammar is an innate idea certainly requires further motivation. Is it not more likely that we have adopted certain systems of classification because there are in fact certain categorical constraints in the world: some entities are living, others not; some particles have an electric charge, others are electrically neutral. The need for a system of classification arises because these different kinds of entities have different causal powers. And different entities have different causal powers because of their distinct *natures* – because they are entities of different *kinds*. It is important to remember that this by no means implies that our language and grammar accurately reflect reality. Certainly, some of the features of our language are due to the nature of our linguistic and rational capabilities, which quite plausibly are distinct to humans. But in many cases our systems of classification are universal, namely, rational agents other than humans, e.g. aliens of some kind, would presumably classify most natural kinds in a manner equivalent to our own. Unfortunately we have no means to test whether this is true, but it surely sounds more feasible than the claim that, say, the structure of the periodic table of elements is merely due to the specific way in which humans see the world.

In conclusion, although the origins of language may remain elusive, the order of explanation should now be settled: language is by no means a fundamental part of the world, and it can only be a guide to metaphysics in the sense that it reflects our prior metaphysical system of classification.

13. When are Metaphysical Debates Substantial?

Every so often it is suggested that a certain metaphysical debate is meaningless – merely linguistic or non-substantial. In fact, there are philosophers who insist that this is the case with all metaphysical debates; others would only grudgingly admit that any metaphysical debates lack substance. In this chapter I will address the worry that many metaphysical debates might be non-substantial and thus the role of metaphysics undermined. However, I do not wish to insist that *all* metaphysical debates are substantial, rather, I will take the middle way and suggest that some debates in metaphysics are indeed only conceptual or non-substantial, while the majority are very much worthwhile. The issue that emerges is that somehow we ought to be able to determine *when* metaphysical debates are substantial and when they are not. This is not always a very easy task, as we will see when we consider some potential criteria for determining the status of problematic debates. In what follows I will demonstrate the main problems with the help of familiar debates in metaphysics, and, by analysing these cases, establish some guidelines for potential criteria concerning individual debates.

The famous example of Carnap and the Polish logician, due to Putnam (1987: 16 ff.), must be one of the best known cases of an allegedly non-substantial metaphysical debate, and will serve as a starting point.[109] We will also briefly look at the debate between three- and four-dimensionalism, which has received attention exactly in regard to its potential superficiality – it has been suggested that the two positions are in fact metaphysically equivalent (Lowe and McCall 2003, 2006; Miller 2005a, 2005b). The

109There are plenty of other well-known cases that could serve as an example, Peacocke (1988) lists some of them.

third example that we will consider concerns atomism and its rival, the theory of atomless 'gunk'. I will argue that this debate is metaphysically substantial and examine why this is so. Additionally, some recent contributions to the metaontological problem at hand, i.e. when metaphysical debates are substantial, deserve attention. I will discuss Cian Dorr's (2005), Eli Hirsch's (2002, 2005) and Kristie Miller's (2005c) views. Finally, I will introduce a methodological tool which is based on a relation I call *truthmaker latching*. The purpose of this tool is to help us to determine when metaphysical debates are substantial.

First, recall Putnam's example. He asks us to consider a world with three individuals, x1, x2 and x3. Then it is asked: how many objects are there in this world? If we follow the Carnapian line, the answer is a straightforward 'three', but if we side with the Polish logician and the Leśniewski line of reasoning, i.e. if we endorse mereology, the answer is 'seven'. We might go as far as 'eight' if we decide to count the so called 'null object'. According to Putnam, we have a case of conceptual relativity at hand, and thus the debate is merely linguistic – we cannot settle the debate because the answer is always relative to the choice of a conceptual scheme. Let me note at this point that I agree with Putnam about this debate being non-substantial, albeit my reasons for thinking so differ from his.

Consider what the disagreement between the different views might amount to. On the face of it, the question seems to be whether to count mereological sums as objects or not. The answer to this question would seem to depend on the ontological status of mereological sums. It could be argued that mereological sums are just fictional entities

and should not be counted as genuine objects at all.[110] According to this story, an object which consists of my nose and the Eiffel Tower is just a convenient fiction. However, this is not what Putnam tried to establish. More recently, Putnam (2004: 43) has clarified that he considers the Carnapian way of talking and the mereological way of talking as *optional languages*, i.e. we can decide whether to adopt either one of them, while the question of whether mereological sums *really exist* is just a 'silly question'. It appears then that Putnam is unwilling to even start to consider the possibility that we might make some sense of the question. But this is a much too hasty decision. Surely we can agree at least about the fact that the issue at hand reduces to the ontological status of mereological sums.

It is, however, possible to take Putnam's point about the optional languages even if his general line is too pessimistic. For mereology is an optional addition to our language and thus we can distinguish between languages which have not been enriched with mereology and the ones that have – nothing metaphysically substantial depends on the issue. Indeed, as van Inwagen (2006) has recently pointed out, to treat 'mereological sums' as a stand-alone general term seems to be a very problematic thing to do. That is, mereological sums are not a special kind of object, rather 'mereological sum' just means 'object that has parts'. This is quite clearly of utmost importance when we try to make sense of a debate over whether mereological sums 'really exist' or not – or about whether this debate is meaningful or not, as the case may be. If van Inwagen is right, there is a logically consistent way in which we can talk as if every object is a mereological sum. Then again, we may choose not to. What is important for the case at hand, however, is that because of the very nature of mereological sums, i.e. that they are

110Or indeed that there are no 'mereological sums', on the lines of Merricks (2001).

not stand-alone general terms, the initial question that Putnam put forward, concerning the number of objects in a world, has very little to do with mereology.

This is by no means the only problem that we will face. Even if we ignore van Inwagen's take on mereology for the time being, there are serious difficulties in the way that the initial question was set up. Putnam says nothing about what *kind* of individuals we are working with, nor about the relations that they might have with each other. Surely, even if we have a theory of parthood and composition to refer to, any answer to Putnam's question would require information as to whether the individuals at hand can be in such an arrangement that they compose a further object. Consequently, the question, and thus the debate, is obviously underdetermined.

Perhaps this is not a very surprising conclusion, as the whole question is artificial. It is all the more striking that Putnam derives some very strong results from this very example, namely that conceptual relativity is a common feature of *all* metaphysical debates. My quarrel with Putnam, then, is not so much about this particular debate, but about the unwarranted conclusions that he makes on the basis of this debate. We have seen other reasons to doubt these conclusions in many of the previous chapters. Nevertheless, I *do* think that the question 'How many genuine objects are there in the world?' is a metaphysically substantial one. It is not necessarily a particularly interesting question, or even one that we could ever provide an answer to, but, in theory, there is a substantial answer which depends on the identity and existence conditions of different kinds of entities. Clearly, we cannot even begin to contemplate what the answer might be before we have settled questions about composition and identity, but I see no reason

to suspect that these preliminary questions could not eventually be settled. Putnam's example presupposes a world where these substantial ontological questions have already been resolved (except for the ontological status of mereological sums) and we *know* that there are only three individuals. To ask how many objects there genuinely are in that world is just unintelligible. We can really come up with any answer we like if mathematical tools such as mereology enrich our language.

Unfortunately, not all cases can be settled as easily as this. Before we look at a few other examples, we should address the more general line of thought that motivated Putnam's treatment of the previous example. This is the line of thought according to which all or most metaphysical debates are meaningless. For Putnam, this view emerges from his relativist agenda, although it should be mentioned that more recently he has weakened this thesis.[111] But there are others who end up with very similar conclusions from, supposedly, non-relativistic grounds. I have in mind especially Eli Hirsch (2005) and Cian Dorr (2005), who both defend a view that could perhaps be dubbed 'ontological charity', i.e. when two groups of speakers are in conflict, we can often settle the debate with a 'charitable interpretation', as it is very likely that their disagreement reduces to linguistic matters. In other words, whatever the underlying ontology of, say, composite objects is, we can always reduce different ways of talking about them to that same ontology, provided that this way of talking is internally consistent.[112]

What is crucial about Dorr's and Hirsch's views is their scope. Dorr only discusses the status of the special composition question, but his arguments seem to suggest that the

111Putnam made this concession in his closing address at the 'Putnam @ 80' conference celebrating his 80th birthday at UCD in March 2007.

112This is a simplification of their views, but captures the thrust of the argument.

situation might be the same with most ontological debates. Interestingly, Dorr himself tries to defend a certain answer to the special composition question on these grounds, namely the nihilist one. Hirsch, on the other hand, argues that many debates over the ontology of (highly visible) physical objects are merely verbal – these naturally include questions about composition. What seems to be crucial for both Dorr and Hirsch is a certain doctrine not unlike the idea of optional languages that we discussed in Putnam's case. This doctrine, known as quantifier variance, states that the linguistic decisions that we make determine the meaning of the existential quantifier, that is, the meanings and truth-values of sentences stating that something *exists* are determined by our linguistic decisions (cf. Hirsch 2002). Stated like this, the doctrine seems to presuppose a certain account of *meanings*, namely that the meanings of sentences are determined strictly in terms of linguistic decisions; they are agreements. Thus, the *existence* of something like the fusion of my nose and the Eiffel tower – the meaning of the sentence stating that such a fusion exists – is determined by our interpretation of the existential quantifier. I find this approach deeply flawed.

Surely, the meanings and truth-values of sentences must have something to do with how things are in the world, otherwise they would be quite uninteresting to start with. The idea of optional languages is fine as far as it goes, as we saw with Putnam's classic example, but no one, as far as I know, has suggested that there would be anything *ontological* at issue at this level. In a very trivial sense, quantifier variance is quite acceptable, indeed, it was already Humpty Dumpty who taught us this by stating that the meanings of the words that he uses are determined by the linguistic decisions that he makes. What is at issue here is of course the fact that one way of talking, one way of

fixing the references of words, and indeed one way of interpreting the existential quantifier must be closer to the way that things actually stand in the world than the others. Theodore Sider (forthcoming) expresses this by saying that some candidate meanings 'carve the world at the joints' better.[113] The challenge for the defenders of quantifier variance is to demonstrate that there is anything more than the trivial, ontologically uninteresting sense to it. Presumably the argument would be that in cases where we can, with the help of a charitable interpretation, reduce seemingly conflicting sentences to the same ontology, there is a case of quantifier variance at hand and the debate is merely verbal. Sometimes this really seems to be the case – Hirsch's claim is that this is the case with most debates over physical objects – but Hirsch never demonstrates this. He (2005: 90) takes Sider to be the only proponent of 'deep' ontology who has addressed his challenge and Sider's approach of denying different possible languages the only feasible strategy of doing this. But it seems that it is Hirsch himself who needs to provide further evidence. Interestingly, he nevertheless insists that quantifier variance is compatible with realism. I have already acknowledged the trivial sense in which this is so, but it is hard to see how Hirsch could say anything very interesting if this was really the case. A closer look at Hirsch's understanding of truth-conditions reveals where the problem lies.

Hirsch (2002: 69 ff.) examines two optional languages inspired by David Lewis and Peter van Inwagen and compares them with ordinary English. The claim is that the 'deep' way to approach ontological questions represented by Lewis and van Inwagen is inferior to the 'shallow' approach endorsed by Hirsch, which just restates the sentences

[113] I do not wish to consider the technical implications of quantifier variance here, Sider (forthcoming) has already done this in sufficient length.

of ordinary English. The thrust of the argument relies on the idea that we should always prefer the language that is closest to commonsense English, and it would appear that the ontological claims that Lewis and van Inwagen make are not true in commonsense English. The upshot of this view is that the theoretical considerations that Lewis and van Inwagen have put forward for their views are of little importance: sentences uttered by the typical speaker of English are false both in Lewis' and van Inwagen's language. However, something is seriously amiss here: how does it follow that the commonsense speaker has priority over Lewis and van Inwagen? It would appear that nothing that Hirsch says gives us any reason to choose one over the others. To be fair, we must acknowledge that commonsense English should be preferred if there are no theoretical considerations to support a different choice. Hirsch's point, I suppose, is that we really have no plausible theoretical considerations to rely on, and thus commonsense English automatically maintains priority. To support his view, Hirsch appeals to the idea of charitable interpretation[114]:

> If you simply set yourself the task of interpreting in the most charitable way possible the language of our community, you cannot avoid the conclusion that the ontological sentences typically accepted by the community are true in that language, in the strictest and most literal sense. (Hirsch 2005: 90.)

This can certainly be challenged. No matter how charitable one is, there are cases in which the commonsense view of the 'community' is arguably quite mistaken, not to mention cases where we simply lack the information needed to determine what is true. Take the case of the bronze statue and the lump of bronze. No doubt the non-

114Admittedly, Hirsch (2005: section V) attempts to address this concern, but his treatment certainly does not warrant the general conclusion about the status of metaphysical debates concerning physical objects, even though I am inclined to reach a similar conclusion about *some* of them.

philosopher would say that the bronze statue and the lump of bronze are a single object, as the 'commonsense' view is that two things cannot exist in the same place at the same time. Well, this is of course true of things of the same *kind*, but, as is well demonstrated in the literature (e.g. Lowe 2005a), it is quite plausible that two different kinds of entities *can* occupy the same space-time location, as in the case of the bronze statue and the lump of bronze. There is an abundance of examples like this, and to claim that the commonsense approach wins in every case seems very questionable. So, Hirsch seriously oversimplifies matters: even if he was right and the commonsense view were true in (almost) every case, there is certainly a lot of work to be done before anything like that can be established.

Hirsch is guilty of trying to derive a general conclusion about the status of metaphysical debates from very little material, as Putnam was in a lot more serious sense. One thing, then, should be clear: as tempting as it might be to try to argue that all, most, or indeed even some metaphysical debates are substantial or non-substantial, depending on your preferences, it is very unlikely that this can be easily established. I suppose that the situation slightly favours a relativist approach, say, along the lines of Putnam – but an approach like that certainly has its own, very serious problems, as has been demonstrated in earlier chapters. So, the kind of project that Hirsch and Sider are pursuing, from opposite ends, faces the same problem: they would have to go through each metaphysical debate and either show that there is a translation between the two approaches (cf. Hirsch), or that there is a deep, ontological issue at hand (cf. Sider). Establishing either one will be a long and hard task indeed, and in the end it seems likely that there are both substantial and non-substantial debates (even in the realm of

highly visible physical objects which Hirsch's project concerns).

Another recent attempt on these lines is due to Miller (2005c). She systematically examines features of metaphysical theories that would be relevant in judging whether they might be metaphysically equivalent, such as inter-translatability and empirical equivalence, but also less decisive features such as explanatory power and simplicity. However, as Miller (2005c: 67) acknowledges, the criteria that she provides for determining whether there exists a correct translation between two theories are necessary, but insufficient. Therefore, the problem is that even if all the criteria are met, we are not quite in the position to say that two theories are equivalent. The definition of metaphysical equivalence that she offers is simple enough: two theories are equivalent if they have the same truthmakers. The question is, how do we settle whether they *do* have the same truthmakers or not? This, of course, is the same problem that I noted above with Hirsch. What really needs to be done is to settle if it is possible that reality might admit different sets of truth-conditions for the opposing views, that is, whether Lewis and van Inwagen, for instance, hold views which are incompatible with each other, but the actual world might turn out to be compatible with either one.

Of course, we can make some progress. For example, Miller (2005a: 14, 2005c: 58) quite correctly points out that part of the disagreement between three- and four-dimensionalists is the fact that their theories presuppose a different understanding of mereology and thus is *not* a cause for a substantial metaphysical disagreement, as the mereological assumptions come from within the theory.[115] Consequently, three- and

115The crux of the 3D/4D debate is that objects are extended either in only the three spatial dimensions, or also in the fourth dimension, i.e. time, and thus that objects persist either by enduring or perduring (see e.g. Miller 2005a).

four-dimensionalists would have to have other reasons for disagreement if the debate was substantial. Certainly, they would claim to have such reasons, and in general, one can always insist that there are some 'unobservable facts' in the world which would corroborate a theory that might otherwise seem equivalent with its competitor (cf. Miller 2005c). Maybe this would just be an *ad hoc* argument, but it does seem hard to establish the equivalence between two theories without leaving any room for doubt. So, as useful as it would be to have some general criteria for this, it seems that there is always an escape route from the general case. Perhaps we can try something else.

Recall the discussion about the debate between Carnap and the Polish logician. Our conclusion was that this is not a substantial metaphysical debate, but rather a disagreement about which mathematical framework to adopt. Moreover, the initial setting of the debate is underdetermined and because of this it is compatible with radically different accounts. Perhaps other non-substantial debates are similar. I wish to take no definite stand in regard to the 3D/4D debate here, but one could raise an analogous concern in this case as well.[116] For instance, the particularly hard questions about the nature of time that three- and four-dimensionalists must address make it very hard to determine the exact ontological commitments of the theories.[117] Until these questions have been settled, it might be impossible to tell whether there really is something substantial at issue, but it would appear that three- and four-dimensionalism treat time like they treat parthood: from within the theory. Thus, whatever the true nature of time turns out to be, it could be compatible with both approaches. This would

116To this extent, Hirsch (2005) might very well be right (he specifically talks about the debate between four-dimensionalists and mereological essentialists), but as I pointed out above, each case must receive an individual treatment.

117Lowe & McCall (2003) discuss some of these questions, see also Miller (2005a) and Lowe & McCall (2006).

make three- and four-dimensionalism equivalent in this regard as well, as others have argued.

So, in many cases the answer to the question whether a debate is substantial or not depends on unknown factors, sometimes empirical ones. Perhaps the most effective way to determine whether a debate is substantial or not is to wait: once further results are established, the issue will be settled. This is admittedly a rather negative result and it does leave the *ad hoc* escape of insisting that some (presently) unobservable facts exist which would settle the debate. Well, fortunately there is a faster way. Consider this: why do we usually believe that a theory differs from another one in some substantial, non-linguistic way? It should have something to do with how the theory describes the world. Now, the truth of the theory depends on whether there are appropriate truthmakers in the world, and what I suggested above was that maybe we should just wait and see if there in fact *are* any appropriate truthmakers in the world. However, at this point the debate is over in any case. To be able to determine whether two theories refer to the same truthmakers we have to know something about the method of how the theory latches on to them. Even if the existence of the suggested truthmakers is unknown, we can still see, judging by the method that a theory uses to latch on to them, whether it could be equivalent with its competitor. For if the methods are similar, we know that the theories must be using the same language. If there is still disagreement, then the difference between the conclusions of the two theories must be something non-linguistic, something about the truthmakers of the theories. In what follows I will introduce a tool which helps to clarify all this, I have dubbed it *truthmaker latching*.

Perhaps the best way to illustrate what I mean by 'truthmaker latching' is to consider an example. I will take the case of atomism and gunk, as it seems fairly clear that this is a substantial metaphysical debate. Why is this so? Well, the method of latching on to the truthmakers of the theory seems to be very much similar in both atomism and the gunk theory. The debate is over the nature of matter: whether matter is fundamentally infinitely divisible, atomless gunk, or whether it consists of some kind of indivisible simples, however small. Lacking definite empirical information about the issue, the arguments in favour of either view are usually to a priori. Van Inwagen (1990) holds that atomism is necessary; Zimmerman (1996) argues that the ontological options available for a defender of atomism are unacceptable; and Sider (1993) thinks that at least the possibility of gunk should be acknowledged – the status of gunk in the actual world is another question. This debate as well could be non-substantial in at least some respects – the debate is related to the discussion about parthood, but mereology as a mathematical theory is logically compatible with both atomism and the gunk theory (cf. Simons 1987: 41 ff., Varzi 2006). In other words, any mereological considerations by themselves would be quite insufficient for either camp. Here we would indeed have a good example of what would clearly be a non-substantial debate: one side defending atomism and the other one atomless gunk, but both from mereological grounds. There would be nothing substantial at issue. Of course, this does not mean that the debate over gunk is non-substantial – the substantial arguments are just not grounded in mereology.

Although the a priori arguments available to both sides in the gunk debate are various, this debate is fortunate enough to have a very clear path to the potential truthmakers. Virtually all the arguments concern the possibility of the appropriate truthmakers:

whether they would be compatible with already established results and would the subsequent ontological ramifications be acceptable. Consequently, it is perfectly clear that the difference between the positions lies in the fact that the truthmakers for each one would be different. If indivisible simples exist, atomism is true, if not, then gunk prevails. The upshot of this is that, rather than translating a theory to its competitor's language, we should concentrate on clarifying the methodological commitments of the theory. What this means in practice is that we must examine *how* a given theory could be true. This applies quite generally: if we wish to evaluate, say, the thesis that brain states are mental states, we must know something about the preconditions of the identity claim, i.e. what it would be like if brain states were mental states.

Let me take a moment to reconstruct the idea. The propositions put forward by competing theories need to be true in virtue of something, if they are true at all. If a theory is internally inconsistent or refutable by other conclusive means and thus false, we need to look no further – this theory can be abandoned. If two theories appear to be feasible and claim to differ, then the difference must be grounded in the truth-conditions of the theories; otherwise the debate is merely linguistic. So, once again, to determine the status of the debate we need to determine what the appropriate truthmakers would be, i.e. what does reality need to be like for each view to be true? This is not always an easy question, as we have seen. For instance, in the 3D/4D debate the truth-conditions concern nothing less than the nature of space-time. Our understanding of space-time, limited as it is, is the major issue here, but it is also possible that it is neutral in terms of the 3D/4D controversy. However, the problem is that in this case it is notoriously hard to determine the exact truth-conditions for either view, which is what keeps the debate

alive. This might be quite frustrating and I cannot blame Hirsch and others too much for putting their foot down and trying to settle matters once and for all. However, we should be wary of the sort of generalisations that we saw Hirsch to be guilty of. The substance of a debate cannot be determined by comparing it to commonsense ontology. Rather, we need to examine how the theory latches on to its truthmakers. Some preliminary conditions for this analysis are listed below in regard to the theory of atomism:

1. **The central claim(s) of the theory must be identified.** In the case of atomism, this would be the claim that all matter is composed of indivisible particles.[118]
2. **The nature of the potential truthmakers must be specified.** This is a crucial qualification and generally concerns any ancillary assumptions that might be implicit in the original claim(s). For atomism, the truthmakers concern physical reality, i.e. material objects, and their composition. Furthermore, it needs to be specified what we consider as proper parts and whether simples may be extended or not (cf. Simons 2004).
3. **Any empirical or logical constraints for the potential truthmakers must be acknowledged.** These may or may not be relevant depending on the nature of the truthmakers. Our example certainly requires a survey of the latest results in fundamental physics, which might have some important implications for the potential truthmakers (cf. Arntzenius & Hawthorne 2005). Also, there are some mathematical constraints that have to be addressed (cf. Zimmerman 1996).
4. **The theory ought to give a detailed account of how we are supposed to identify the relevant truthmakers if and when we encounter them.** For proponents of atomism, this amounts to a physical description based on the

118For the sake of simplicity, I will ignore any further qualifications.

conditions specified in (2) and (3) as well as an account of the status of the theory in regard to a completed ontology of physical objects.

Some of these requirements might seem rather vague, and they clearly leave out potential arguments which do not concern the truthmakers *per se*, but rather, say, ontological parsimony or the metaphysical implications of a theory. Nevertheless, these are certainly necessary requirements for any complete account. Keep in mind though that we are interested in some guidelines to help us determine whether two theories are equivalent or not, not just the validity of one theory. Now that we have the background sorted, it is time to consider truthmaker latching in more detail.

What sort of a relation is truthmaker latching? We have seen that different theories can have quite distinct methods of latching on to their truthmakers and it might thus seem that we are really talking about a family of relations here. The crux of the matter, in any case, is that there *must* be a plausible story about what the reality ought to be like for a certain theory to be true. Not only that though: for a theory to be in any way defensible it should propose some means of verification (or falsification). That is to say that just listing the potential truthmakers of a theory is not sufficient, the theory should additionally offer a rigorous method of identifying these truthmakers. What could such a method be based on? This appears to be the key question: if we do not have a clear idea about our epistemic access to whatever is supposed to make a given theory true, then we surely cannot hope to convince our opponent about its validity, or, indeed, to convince the sceptic about the meaningfulness of the debate in the first place.

13. When are Metaphysical Debates Substantial?

Now, it would seem that the only way to determine whether the truthmakers postulated by a theory actually exist in the world, thus making the theory true, is to observe them directly or indirectly. As cases where we can observe the relevant truthmakers directly are generally quite clear to start with, it is the indirect access to truthmakers that we are here interested in. Consider temporal parts postulated by four-dimensionalists. What would reveal the existence of temporal parts to us? Clearly, no direct observation helps to settle matters once and for all and accordingly the arguments tend to concern situations where we might acquire support for temporal parts indirectly, such as identity through change (cf. Sider 2001: 5): change can be explained as a difference between *temporal parts*, and thus via change we receive indirect evidence of the existence of temporal parts. However, due to the indirect nature of this information, there might just be an alternative explanation, as Lowe and McCall have suggested: perhaps 'Change is the relative movement, rearrangement, gain or loss of enduring 3D particles in a macroscopic body' (2006: 575). Consequently, identity through change is *not* a satisfactory indirect indicator of the existence of temporal parts, as three-dimensionalists could just as well use it as indirect evidence for their theory.

In fact, it appears that so far neither three- or four-dimensionalists have succeeded in providing definite (direct or) indirect evidence for the existence of the appropriate truthmakers of their respective theories. Perhaps such evidence is forthcoming, but otherwise we should deem the 3D/4D debate non-substantial. It will not do to insist that one of the two theories might still be correct and it is just our epistemic access to the truthmakers that has failed; if a theory is unable to provide definite means to establish epistemic access to its truthmakers, then it simply is not a complete theory.

The question that remains is how, exactly, are we supposed to establish epistemic access to the truthmakers of a given theory? This is the key element of truthmaker latching. It also seems that sometimes indirect evidence is misleading, as we saw above, and we would do well if we could come up with a more rigorous method here. To do this, we need to carefully analyse the potential truthmakers of the theory under investigation and determine what sort of observable effects their existence might imply. In other words, we ought to inquire into the *causal powers* of the potential truthmakers.

Consider the atomism/gunk debate again. If both atomism and gunk are *possible*, that is, if the actual world could be either atomistic or gunky, then a proponent of either view must say something about what it would be like if their view was the correct one. Then they must offer some support for the conclusion that the actual world *really is* like that. So, we can only decide between two competing views, given that they are valid and coherent, by considering what the world would be like if either view was true and then checking whether the world really is like either view suggests. Accordingly, if Sider (1993) is right, the atomism/gunk debate would seem to turn to empirical matters, whereas van Inwagen (1990) and Zimmerman (1996) attempt to establish the necessity of their respective views by a priori means. Clearly, the a priori work needs to be done first, but if a definite solution is lacking after this stage, then we must proceed to analyse the causal powers of the potential truthmakers and attempt to determine how the existence of these truthmakers would be reflected in the actual world.[119] We might have to turn to our colleagues in the empirical sciences to do this, as might have been expected.

[119] I will not dwell in the case of atomism/gunk any longer, nor attempt to analyse it according to this scheme. In fact I am inclined to think that we *can* settle this particular debate by a priori means, but this obviously does not undermine the scheme itself.

In conclusion, our means to determine when metaphysical debates are substantial rely on tracing the route from empirical results (when the debate cannot be settled by a priori means) to the truthmakers that might manifest themselves via such results, given their causal powers. This general method is what I have called truthmaker latching. Finally, we are in a position to say what sort of a relation truthmaker latching is. Truthmaker latching is reducible to the causal powers of truthmakers, but it is not strictly a causal relation itself. Rather, it concerns the things that bring forth the causal powers of truthmakers, namely, the essences of truthmakers. Truthmaker latching is the relation from the essences of truthmakers to their empirical manifestation. When we evaluate the validity of a theory, it is this relation that we focus on, and we should have a plausible story about how the theory latches on to its truthmakers. It is by comparing these stories that we can determine whether two theories are equivalent: if the theories latch on to the same truthmakers, then the quarrel between them is non-substantial – presumably just a different story about the *route* to the truthmakers.

The point that I have been trying to make is thus methodological; each metaphysical debate must receive an individual treatment, as there are no general criteria for truthmaker latching – at least nothing much more detailed than what we saw above. However, we can and should say a lot more about each individual truthmaker latching story. It is a telling symptom of a serious lack of research into these matters that metaphysical debates are deemed substantial or non-substantial on quite arbitrary grounds, as I have demonstrated. The best remedy for this is a thorough inquiry into the very basics of the theories under scrutiny – it must be made clear what is being said before we can evaluate whether the actual world corresponds with it, not to mention to

settle if another theory says the same thing or not. The tools for doing this are certainly within our grasp.

14. Towards a New Methodology

There seems to be a growing interest towards the methodology of metaphysics from a metaphilosophical or metaontological point of view, as we saw in the previous chapter. However, serious dedication to methodological issues in metaphysics is still rare. Most philosophers who engage in some kind of metaphysical research do say a word or two about methodology, but these passages are usually sketchy at best. A fact that might contribute to this is that there is no standard of how metaphysicians should discuss the methodology of metaphysics. My aims in this chapter are two-fold: to point out the need to discuss methodological issues in metaphysics as well as discuss the way this should be done, and to make some suggestions as to what would be the correct methodology for metaphysics.

As to the first point, the need for methodological considerations in regard to metaphysics, I believe that we have a clear case. In the last chapter I demonstrated that to able to determine when a metaphysical debate is substantial, we must compare the methodologies of the competing theories. Naturally, this would be a much easier task if there were some guidelines as to what kind of methodological issues a metaphysical theory should address in the first place. Strangely enough, there have been hardly any extensive attempts to map these guidelines. Perhaps one reason for this is the apparent diversity of approaches that one may take – from the complete denial of the whole discipline to extreme idealism. However, I see no reason why this should prevent us from setting at least some rudimentary guidelines. There is certainly a call for them, as the lack of even a basic common ground seems to be the cause of many redundant

debates in contemporary metaphysics. Furthermore, there is simply a complete lack of discussion between some approaches. The obvious example that comes to mind is the analytic/continental barrier. While I admit that a complete reconciliation is probably out of the question, I do think that the search for some common guidelines should be a joint effort. If nothing else, a project like this would help us to determine where, exactly, different approaches divide. More often than not even this condition is not met and the core of the problem is clouded by terminological or even emotional issues. Having said that, I must acknowledge that my approach is guilty as charged, for it is distinctly analytic in nature. I hope that I can nevertheless point out some fairly uncontroversial guidelines for any metaphysical theory.

To begin with, we are faced with the obvious problem for any attempt to map general guidelines for metaphysics: how can we separate methodological issues from ontological presuppositions? Well, any exhaustive account of the methodology of metaphysics is bound to end up with at least some ontological commitments, and so does the one that I will put forward. But perhaps we can identify the issues that divide different accounts and come up with a list of topics that one must address *before* making any specific metaphysical commitments. A natural starting point, although already contentious, are the laws of logic. Perhaps such principles as the law of non-contradiction, or at least a *minimal* principle of contradiction, i.e. not every statement is both true and false, as suggested in Putnam (1978), would work as a starting point. You might add a number of slightly less uncontroversial principles to this list, like the principle of bivalence, but of course there are some who would question this move (cf. Dummett 1991). Even the law of non-contradiction, as we saw in chapter 11, has been

challenged (cf. Priest 2006). I have already addressed these worries, and would hope that we can make at least some progress. It is perhaps noteworthy that the three principles that are often considered to be the most fundamental philosophical principles, i.e. the law of non-contradiction, the law of identity and the law of the excluded middle can all be found in Aristotle. Consequently, it might be Aristotle who has best managed to characterise some of the most basic methodological guidelines for metaphysics.[120] At this level the idea is simply that we must agree on the most fundamental requirements for rational thought to be able to have any kind of a discussion. The mentioned principles are at least good candidates for this.

Even if we can agree on principles like the law of non-contradiction, we are certainly going to need more common ground if we hope to say anything substantial about the methodology of metaphysics. One question that apparently needs answering is this: what is the target of metaphysical inquiry? I am afraid that already here we will see a number of opposing views. A very general answer to this question might be 'the world' or 'reality', or perhaps 'the fundamental structure of reality'. But there are those who would rather answer 'the mind' or 'concepts'. Of course, this reflects the debate between realism and different kinds of anti-realist views. Maybe we can reach at least a virtual agreement though. For no matter what we think about the outside world or the nature of reality, there is always going to be something in common with different metaphysical theories. Perhaps Strawson's (1959) classic distinction between descriptive and revisionary metaphysics would help to illustrate this.

According to Strawson, descriptive metaphysics describes the actual structure of our

120Recall the discussion from chapter I: 1.

thoughts about the world, whereas revisionary metaphysics tries to produce a better one. But even though the descriptive and the revisionary metaphysician might disagree about whether we should try to produce a better structure, at least they agree that there is some sort of a structure to talk about, and it is the task of metaphysics to say something about it. This agreement might be only virtual because there are also those who insist that a fundamental study of reality is impossible, or uninteresting. Nevertheless, if complete nihilism is put aside, it seems to me that any honest philosopher has to admit that, ideally, philosophy and metaphysics should try to reach as much information about the nature of reality as possible. Part of this task may be to define the limits of what can be known, but it would be contradictory to assume that the answer is 'nothing'. After all, even that is an answer to the question. Strawson's distinction, however, does not help in settling the fundamental difference between realist and anti-realist approaches, which we will discuss shortly, i.e. does metaphysical knowledge concern our *thoughts* about the world, or the *mind-independent* structure of the world? This issue has of course been touched upon in many of the preceding chapters and in the end it seems to come down to a choice between Aristotelian metaphysics and Kantian metaphysics. At this point, it should be quite clear where my loyalties are, but in what follows I will return to this issue once more.

Some further preliminaries should be examined before we advance though. A question that certainly needs to be addressed is how do we reach knowledge about metaphysics, what is the method of our inquiry? This question might be dubbed epistemological, but I think that it is in fact one of the most important metaphysical questions, or indeed methodological ones. In any case, this is surely a question that will divide views. Most

proponents of metaphysics would probably say that a priori reasoning is the principal tool of metaphysical inquiry, but it could also be argued that a posteriori knowledge is quite sufficient for metaphysics, as has recently been suggested by Fraser MacBride[121]. One has to be very careful here though. The fact that many metaphysicians share the view that a priori reasoning is crucial for their discipline does not mean that they agree about the exact role that a priori reasoning plays in metaphysical inquiry. For some, a priori reasoning might be the only thing that metaphysics is concerned with, while others would rather say that we need a combination of a priori and a posteriori knowledge. Moreover, and more importantly, metaphysicians have radically different views about what a priori reasoning actually is. For instance, my own view about the nature of metaphysical reasoning is probably closer to MacBride's than to some of those who praise a priori reasoning, but my view about the nature of *a priori reasoning* is certainly different from MacBride's as I hold that a priori reasoning is crucial for metaphysical inquiry. So, one thing seems clear: we must add the nature of a priori reasoning and its role in metaphysical inquiry, if any, to our list of key issues that any metaphysical theory must address.[122]

A related, crucial issue is the degree of certainty that can be reached with the help of the chosen method of inquiry. The classic view is that a priori knowledge is certain (and necessary), but as I have demonstrated, I think that some fundamental revisions are needed here, one of them being the adoption of a thoroughly fallibilistic view. Needless to say, anyone who claims that absolute certainty *can* be reached, should be ready to present a strong case for that view. It is important to say something about the degree of

121MacBride, F., 'Ontological Categories: A priori or A posteriori?', delivered at the Conference On Methodological Issues In Contemporary Metaphysics, 6-7 January 2006, Nottingham.

122I have of course discussed this already in chapter eight.

certainty in any case though, as one should be able to demonstrate that whatever one's preferred method of inquiry is, a *sufficient* level of certainty can be reached with it. Any account that admits a posteriori elements in our inquiry, as I believe that we should do, quite clearly has to acknowledge that there is always room for error. There are numerous ways in which these errors might be minimised, but the most promising way seems to be to rely on the scientific method: science has learnt to live with the uncertainty of empirical information and we would do well to take advantage of this in metaphysics as well. The initial reaction might be to say that this cannot be done, as metaphysics does not deal with empirical verification, whereas this is exactly what the methodology of science is based on.

This reaction is problematic in two ways. Firstly, the only way to uphold the view that metaphysics has nothing to do with empirical results is to restrict it just to a priori knowledge. While this view might be defensible, the burden of proof is certainly on those who hold it, as they will have to find a way to explain things like a posteriori necessities; these being normally considered to express something metaphysically substantial, yet having an important a posteriori part. Secondly, I think that we have good reasons to believe that the methodology of science is *not* strictly based on empirical verification, there is in fact quite a lot of a priori reasoning taking place, the most obvious example being scientific thought experiments.[123] In short, empirical information is not metaphysically innocent. The upshot of this is that we already have a rather seasoned method of inquiry which, although not absolutely certain, nevertheless reaches a high and consistent degree of certainty and is self-correcting.

123These issues were discussed in detail in chapters five to seven.

Yet another issue that is related to the discussion above is the question of how different views about modality might affect the picture. Some of the most important debates about metaphysical inquiry are fundamentally debates about the nature of modality and one of the key topics here is the necessary a posteriori. It seems that, sooner rather than later, any metaphysical theory will have to deal with questions concerning modality. Indeed, often some of the strongest arguments in favour of one view or another are based on presuppositions about modal truths. Modality has received increasing amounts of attention for these very reasons, but even the main contributors rarely approach the topic in a methodologically sound fashion, perhaps with the exception of Kit Fine (1994, 2002). By 'methodologically sound' I mean an approach that tries to go to the very bottom of the problem, that is, tries to give an account of what modality *is*, what it is grounded in and how many fundamental types of modality there are. Fine's take on the matter is that modality is grounded in essences, a view towards which I am very sympathetic.[124]

The problem with many discussions about modality is that the fundamental questions are clouded by technical issues or debates over modal logic. One of the most confusing ways to 'solve' problems raised by the necessary a posteriori and the likes of it is the system of two-dimensional modal logic. It seems to me that none of the various formulations of it (e.g. Jackson 1998, Chalmers 1996) help us to get any closer in answering the initial question: what modality is and how can it be grounded. Rather, these accounts often presuppose a certain view about modality, generally a conceptualist view. At the same time, some philosophers who do use the two-dimensional framework, namely Jackson and Chalmers, are using it to argue for some very strong conclusions

124See chapter nine.

indeed, i.e. for or against physicalism. Now, surely, what one needs before putting forward such arguments is a detailed account on what modality is.

Many of the remarks I made above were very cursory. However, I have discussed all of the mentioned topics in detail in previous chapters; and this is exactly because I believe them to be some of the most crucial issues concerning the methodology of metaphysics. So far, I have mentioned the following issues:

1. An account of the most basic requirements for rational thought is needed. This may consist of such principles as the law of non-contradiction etc.
2. We need to say something about the target of metaphysical inquiry.
3. It must be shown how information about this target is reached, i.e. what is the methodology of metaphysical inquiry. This will most likely have something to do with a priori knowledge.
4. Whatever the method of inquiry is, we have to examine what is the degree of certainty that we can be reached with it.
5. At some point we are faced with questions about the modal status of our results. So, an account about the nature of modal truths is required.

Naturally this list does not cover everything, but it is a start. It would certainly be a sign of progress if we could see at least a reasonable attempt to cover these issues when philosophers put forward metaphysical theories. Also, this list complements the points raised in connection to the method of *truthmaker latching*, which I introduced in the previous chapter, namely, the issues at hand need to be addressed in a complete story

about how a theory latches on to its truthmakers.

Instead of repeating what has been said in previous chapters in regard to the listed issues, I will devote rest of this chapter to a topic which is related to all of them: the debate over realism. Are the methodological remarks that were made above of any help in settling this debate? Well, they might be, if we approach the problem from a slightly different angle. Two recent contributions to the literature, by Kit Fine (2001) and Ted Sider (forthcoming), are fairly good examples of what I have in mind. They both challenge the anti-realist approach and argue that there is hardly an intelligible way to even formulate a non-sceptical version of anti-realism (which it would need to be to have any value). They examine, among others, the views put forward by Dummett, Goodman and Hirsch.[125]

According to Fine (2001: 14), the only plausible challenge to metaphysical realism is what he calls 'quietism', whereas Sider is trying to defend his ontological realism against 'ontological deflationism'. There is an important difference between these two, however. For Sider, the challenge is that metaphysical questions are nonsensical, and this indeed seems to be what many 'ontological deflationists' have suggested. Fine, however, disagrees, as he thinks that the serious challenge is the claim that we cannot find answers to metaphysical questions. So, which is the stronger case for the anti-realist: that we cannot properly formulate sensible metaphysical questions, or that we are just unable to answer them? Well, it seems to me that we *can* formulate sensible metaphysical questions, as both Fine and Sider argue.[126] They both also put forward a

1251 examined the (Putnam-)Dummett-Goodman line in chapter two and Hirsch's approach in chapter four.

126Recall also the discussion from the last chapter.

suggestion as to how we might proceed to answer these questions, but these suggestions are certainly controversial. It would thus seem that the real challenge is to provide answers to metaphysical questions. This is not a bad result though, for as Fine (ibid.) notes, if we do find a way – a working methodology – to answer metaphysical questions, then the anti-realist objection is automatically refuted.

The methodological challenge that metaphysicians face is thus to demonstrate that we have the means to settle metaphysical debates, that we have a reliable method of metaphysical inquiry. Of all the anti-realist objections that I have addressed in the course of this thesis, this seems to be the most reasonable one. Of course, one of the aims of this thesis is to pursue exactly this issue, and I have indeed already introduced the method of metaphysical inquiry which seems to me to be the most fruitful one. To put it in one sentence: we reach information about the (metaphysically) possible ways that the world might be with the help of a priori reasoning, which is ultimately grounded in essences, and the status of these results in terms of the actual world is determined by a posteriori means.

On the face of it, the method which I have introduced might not fare much better against the anti-realist than Fine's and Sider's corresponding suggestions, but my strongest argument is perhaps that the anti-realist as well is very much committed to the very same method. This is because the modern anti-realist, whether she admits it or not, certainly shares the generally accepted scientific world-view with the realists.[127] That is to say that we do, after all, have some shared ground – some shared assumptions – on

127And if she does not, we probably have not heard of her – anyone relying on modern communications technology is undoubtedly committed to the scientific world-view.

which to build. As I argued in length in chapters five to eight, we have good reasons to think that science is far from being metaphysically innocent, rather, it is specialised metaphysics, subject to the same method of inquiry as metaphysics, albeit with a strong emphasis on the empirical part. The upshot is thus that if my account of the continuity between metaphysics and science is correct, then there is very little room for any kind of anti-realist metaphysics: only a metaphysical realist can put forward a plausible theory about the metaphysical foundations of natural science.

In conclusion, although it is not the primary concern of this thesis to discuss the methodology of metaphysics as such, but rather to demonstrate that metaphysical inquiry is necessary, I hope to have successfully outlined one promising way of doing metaphysics. But now it is finally time to formulate the concluding argument of the thesis – the argument for the necessity of metaphysics.

15. The Necessity of Metaphysics

I am now finally in the position to discuss the main argument of the thesis, the argument for the necessity of metaphysics, in detail. In the course of the second part I have demonstrated that everything from the natural sciences to logic, language and truth have an intimate connection with metaphysics – are grounded in metaphysics. However, a simple and conclusive argument is yet to be established, and admittedly the case-by-case strategy which I have used can never be enough to demonstrate the *necessity* of metaphysics. Nevertheless, I do hope to have shown that we have very strong reasons to think that metaphysics is an extremely influential and important discipline. It is perhaps difficult to see what kind of an argument could do the job, as any claim for the necessity of metaphysics is surely going to have an endless amount of controversial premises, not the least of them which concern the nature of metaphysics. However, I believe that I now have everything that is needed at hand. The most important provisional work was done in chapters eight and nine, as a priori knowledge and modality are in a central role in the argument for the necessity of metaphysics which I am about to put forward.

The form of my argument is not entirely original. Most of the elements were already present in Aristotle, but E. J. Lowe has formulated the idea in contemporary terms. Lowe's initial concern is the *possibility* of metaphysics, but if the idea is correct we can make a stronger claim:

> In short, metaphysics itself is possible – indeed necessary – as a form of rational human inquiry because metaphysical possibility is an inescapable determinant of actuality. (Lowe 1998: 9.)

This should perhaps sound familiar, given what has been said in previous chapters. The central premise here is that metaphysics deals with possibilities – metaphysical possibilities – but is not able to determine what is actual without the help of empirical knowledge. However, it is crucial for this account that empirical knowledge in itself is not able to determine what is actual either, for metaphysics is needed to delimit the space of possibilities from which the actual can be 'picked out' by empirical means. Basically, the idea is that metaphysics is necessary and prior to knowledge about actuality because without it, there would be only an endless space of possibilities, from which it would be impossible to pick out the actual.

The discussion in the previous chapters about the a priori and modality in particular follows the pattern just described very closely. As I have suggested, the metaphysical delimitation of what is (metaphysically) possible is the task of a priori reasoning. That is, a priori reasoning is concerned with metaphysical possibilities. Furthermore, I argued at length that metaphysical modality is grounded in essences, and thus that essences are the fundamental target of a priori reasoning. With these qualifications in mind, the argument for the necessity of metaphysics takes the following form:

1. All rational inquiry requires a delimitation of what is possible.
2. The modal space is exhausted by metaphysical modality.
3. Metaphysical modality is grounded in essences.
4. All rational inquiry requires knowledge about essences. (From 1, 2 & 3.)
5. Our epistemic access to metaphysical modality is via a priori reasoning.
6. A priori reasoning is fundamentally concerned with essences. (From 3 & 5.)

7. All rational inquiry requires a priori reasoning. (From 4 & 6.)

How does this line of reasoning imply that metaphysics is a necessary discipline? Well, already at stage 4 we seem to have a strong case for this, as knowledge about essences is effectively what metaphysics is about, indeed, according to Aristotle metaphysics is the science of essences. However, I have not discussed the exact nature of essences at great length, and in any case our epistemic access to essences will surely be a crucial part of the story – this is where a priori reasoning comes in. A priori reasoning, I take it, is a form of inquiry which is quite uncontroversially metaphysical. Consequently, all rational inquiry is based on metaphysical inquiry. One of the most interesting implications of this is that the natural sciences as well are committed to metaphysical inquiry; this was of course discussed in detail in chapters five to seven, where we saw that the most important requirement for progress in science is the forming of a hypothesis, which is based exactly on a priori considerations.

Premises 2, 3 and 5 were defended in chapters eight and nine and I will not discuss them in detail here. Premise 1, on the other hand, has not been defended in detail. As the first premise is perhaps also the most controversial one, I will devote the rest of this chapter to elaborating and defending it. The idea that all rational inquiry requires a delimitation of what is possible has been touched on in passing in many of the previous chapters, but it might almost appear to beg the question. Let me demonstrate why this is not the case.

Firstly, as I have already addressed a number of different anti-realist objections to this

project in previous chapters, I will not further concern myself with these. Perhaps the best way to illustrate the idea behind premise 1 is to consider an example. Many examples that have already been discussed in this thesis would be suitable for this purpose, but let us take a completely new one from an area of philosophy which is notoriously difficult in regard to a priori considerations, namely philosophy of mind. So, consider the basic thesis of the identity theory: brain states are mental states. This is of course an a posteriori identity claim and, I take it, currently its status is unsettled. Now, the question is, what sort of empirical information could verify this identity claim? We certainly have ample information about what happens in our brains, but not even many physicalists claim that this is by any means enough to settle the debate. In fact, I think that it is fair to say that *no* amount of purely empirical information will settle the debate by itself. Without going into the literature about the 'explanatory gap', it can be said that this appears to be the case because we lack sufficient information about the underlying *a priori identity claim*. What this means is exactly that even the *possibility* of mind-brain identity has not been sufficiently characterised, nor, of course, has the possibility of mind-brain duality.

The stalemate in contemporary philosophy of mind amounts to just this: the a priori delimitation of what is possible has not been completed, at least not in sufficient detail to convince the majority of philosophers. What this means is that *we do not know* what sort of empirical information would verify or falsify the identity claim in question. We might even already possess this empirical information, but as the a priori work regarding the debate has not been completed, the empirical information is of little use to us. The same, I think, is true of many other a posteriori identity claims.

More generally, the way in which we interpret and analyse empirical information is dependent on the a priori delimitation of what is possible. In some cases the a priori work has been done long ago[128], whereas some cases seem to elude definite a priori characterisation very effectively. As we have seen, the same is true of the natural sciences. No amount of empirical information will settle the most important and most difficult questions concerning quantum mechanics; any attempt to interpret the results will have to start from metaphysics. For instance, we need to know what kind of interaction between photons is possible – what kind of relations *could* hold between them – before we can address the problem of 'spooky action at a distance'.[129]

Any number of examples that I give about the need of an a priori delimitation of what is possible is unlikely to be enough, so I will conclude by emphasising the reasons for this delimitation being a universal condition for all rational inquiry. Obviously this has something to do with the preconditions of rational inquiry. These preconditions, as I have argued throughout this thesis, must be determined in terms of the target of our rational inquiry. As should be clear at this point, my contention is that the target of our rational inquiry is the essence of whichever entity we are trying to reach knowledge about. I have already discussed our epistemic access to essences in detail, and the upshot of this discussion was that we reach knowledge about essences with the help of a priori reasoning. However, this is not possible directly, but rather via the modal constraints which the essences of the entities under investigation impose. These modal constraints are reflected in the space of metaphysical possibilities which is directly accessible to our a priori capabilities. Finally, because this is the *only* way in which we

128For instance, the a priori part in the identity claim concerning Hesperus and Phosphorus, which was discussed in chapter nine, is relatively clear.

129Some issues concerning this problem were discussed in chapter five.

could possibly acquire information about the natures of the entities under investigation, it follows that this process is necessary for any form of rational inquiry. And why is this the only way? Well, because of what we have just seen: empirical information by itself does not tell us anything about the fundamental natures of the entities that are the *cause* of the observed empirical results. Specifically, purely empirical research does not tell us *which* entity is the cause of the empirical observations in question. Indeed, empirical information is just a manifestation of the causal powers of different kinds of entities, and if we did not know what kind of entities *there could be*, then we would have no means to determine what our empirical observations amount to – they would tell us nothing about the fundamental structure of reality. A particularly good example of this process is our ability to predict future empirical observations with great accuracy – this is only possible because we know something about their fundamental *causes*, about the essences of the entities which are the reason for these empirical observations in the first place.

All this, I hope, should be enough to demonstrate that metaphysics is indeed a necessary discipline, the first discipline – maybe even the *only* discipline, insofar as we consider special sciences to be concerned with just a small part of being and metaphysics to concern being as a whole.

Conclusion

The case for the necessity of metaphysics has now been presented, but a good number of other issues concerning metaphysics – what it is, how it should be done and why should we engage in it – have also been discussed. The purpose of this thesis is to support the renaissance of metaphysics proper, metaphysics as the first philosophy, and to demonstrate that realism can hold its place despite the numerous attacks from sceptics, relativists and even from those who claim to be (realist) metaphysicians, but misconstrue the very nature of the discipline. I would like to conclude the thesis with a few words about some very influential philosophers who I have completely omitted here, and also to point out some possibilities for future research emerging from this project.

It might seem incredible that I have managed to discuss everything from realism to semantics and logic, and hardly mentioning Wittgenstein. I have several reasons for doing this. Most importantly, I believe that many of Wittgenstein's ideas are very much present in the literature which I *have* covered (cf. Kant, Carnap, Quine, Putnam, Dummett, Jackson and Hirsch). It was never my purpose to focus strictly on individual philosophers, even though the structure of the thesis might suggest the opposite, especially in regard to the first part. Rather, I have been concerned with the ideas themselves, and, as we have seen, most anti-realist objections are very similar in spirit. However, there are more specific reasons for not discussing Wittgenstein; they are largely the same as the reasons for not discussing Kripke in more detail than I have. What I mean is that I wish to avoid exegetical matters, and with Wittgenstein more than

with anyone else these seem to be unavoidable.

Something should perhaps be said about the complete lack of continental figures as well, such as Hegel, perhaps also Nietzsche. Here my primary reason is simple: I lack the relevant expertise for an in-depth discussion about these philosophers' views concerning metaphysics. For this reason, it would have been impossible to do justice to their projects. Furthermore, although it is certainly no reason to ignore them altogether, the conception of metaphysics that these philosophers have is, I believe, so radically different from the ones discussed in this thesis that fruitful comparison would have been very difficult. Having said that, I am optimistic about the possibility of comparing any philosophical systems if it is done in a piecemeal fashion. The question is, how far can we get before a fundamental disagreement, like a disagreement over the law of non-contradiction, is encountered? Aristotle suspected that this might cause a fundamental communication breakdown, and I am inclined to agree.

I could keep listing important philosophers that I have had to omit for some time, but I hope that a very general remark will suffice for the rest: even as it stands, the scope of this thesis is very broad and it has been necessary to skip many details. Accordingly, including any more material would have meant that the thesis would have been little more than an overview of different views concerning metaphysics. This was not the purpose, and I hope that the balance between historical matters, contemporary topics and revisionary content is about right.

In addition to the main argument, I have put forward some novel arguments concerning,

for instance, the a priori, modality and logic. However, in this thesis I have only outlined these arguments, and many of them deserve much more careful attention. Because of this, I would like to note some potential lines of future research.

Firstly, more needs to be said about the bootstrapping relationship between a priori and a posteriori knowledge which I introduced in chapter eight of the second part. My opponent may claim that the examples concerning scientific hypotheses and thought experiments are inadequate. Thus, the details of this relationship need to be examined. Also, there is a risk of confusing a priori propositions and modal intuitions and it would be useful to further clarify the link between apriority and modality.

Secondly, related to the last point, our epistemic access to modality, which I claim to be based on our a priori capabilities, calls for further analysis. In chapter nine of the second part I derived my case from an analysis of a posteriori necessity, but given the threat of pseudo-possibilities that I have introduced, the concern that our epistemic access to modality might be thoroughly unreliable needs to be discussed.

Thirdly, although I hold that all modality reduces to metaphysical modality, there are further issues about how specific sub-species of metaphysical modality are related, i.e. what is the structure of the modal space. This includes issues about the scope of conceptual modality (understood as a sub-category of metaphysical modality), logical modality, physical modality, natural modality, and so on.

These three points are further specifications of the account I have already established,

but a number of original topics emerge from the themes of this thesis. These include the following.

Firstly, what is the nature of the grounding relation mentioned in connection to a priori knowledge and modality (i.e. the a priori is grounded in modality) and again with modality and essences (i.e. modality is grounded in essences)? The notions of 'grounding' and 'in virtue of' are generally used in connections where the dependence between two things is not causal, but something *metaphysical* or ontological (cf. Lowe 2005b). It might be fruitful to examine the dependence relation in the mentioned cases. For instance, what does it mean, exactly, to say that cats are necessarily animals *in virtue of* the necessary relationship between the kinds 'cat' and 'animal'? Generally, this has something to do with the identity conditions of the involved entities, in this case the kinds 'cat' and 'animal', and is thus a feature of *essential dependence* (ibid.).

Secondly, what is the role of essences in the picture I have sketched? Typically, the 'essence' of an entity refers to its 'nature' or 'deep structure', but for some it has unfavourable, almost mystical connotations. Quine famously argued against 'Aristotelian essentialism', and indeed, for Aristotle, metaphysics is the science of essences. Certainly, essences do a lot of explanatory work in this thesis. The status of essentialism in contemporary metaphysics would be a useful thing to examine, and a rigorous account of what essences are, following Fine (1994) and the Aristotelian line would support the project at hand.

Thirdly, my account of a priori knowledge seems to leave very little room for certainty,

because our means to verify the truth of (non-analytic) a priori propositions are fundamentally fallible (i.e. empirical). But surely truth itself cannot be fallible? Well, that may be, but 'absolute truth' and 'absolute certainty' are obsolete notions, as I have noted. Fallibilism, once you commit to it, pervades your ontology. This does not need to be a bad thing, however; science at least has learned to live with it. However, it does leave open a number of questions. If metaphysical inquiry is always fallible, how are we supposed to determine when we have feasible results? The process is surely not as simple as it is in natural science. Or is it? Furthermore, what is the exact relationship between truth and fallibilism? Implicit answers to these questions have been offered, but a more detailed analysis is called for.

Finally, what is metaphysical realism? The answers that I suggest to the questions raised in this thesis are 'realist', and indeed my conception of metaphysics in general is rigorously realist, as I have emphasised repeatedly. The classic realism/anti-realism discussion has been covered at some length, but the core of the matter seems incredibly elusive. At its simplest, metaphysical realism amounts to the idea that reality is mind- and language-independent, but what does *that* mean? Further, and more importantly for my conception of metaphysics: what kind of implications does this have for metaphysical inquiry?

These are only some of the issues that emerge from this thesis, and although the line I would take in addressing them should be clear, they certainly deserve more attention. Nevertheless, my primary goal has been established and I believe that I can safely say that metaphysics as I have here defined it deserves to be back in the limelight.

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