IN DEFENSE OF PROVISORY METHODOLOGICAL NATURALISM

by

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Abstract: Methodological naturalists generally believe that science is the best and only method for discovering the properties of reality and what exists. A central tenet of methodological naturalism is that science is limited to evaluating only natural things. Science cannot allow for the possibility of supernatural objects because doing so would irreparably damage the scientific method. Or, it may be that evaluating the supernatural is beyond the capabilities of science. In this thesis, I challenge these assumptions. I defend a form of naturalism known as Provisory Methodological Naturalism which holds that science can, at least theoretically, evaluate supernatural claims. Provisory methodological naturalists believe the notion that science only evaluates natural things is provisional and subject to being overruled. Should supernatural objects exist, science would be able to observe them.

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Introduction

I. Project Overview

The subject of this work is a philosophical view called naturalism. Naturalism is the thesis that only natural things exist. According to this view, there are no supernatural entities or phenomena. Under naturalism, things like planets, chairs, and trees exist. Dark matter and molecules also exist. But ghosts, demons, and angels do not. Naturalism implies atheism; A supernatural God that operates in or effects our world does not exist, according to naturalism.

But we can go further and refine the term. For example, the above view concerning existence is often referred to as *ontological* naturalism. Ontological naturalists believe that only natural things exist. Along with ontological naturalism there is also *methodological* naturalism. This is the thesis that science is the only reliable method for discovering the nature of our world. To methodological naturalists, non-scientific or supernatural methods are untenable. There are other types of naturalism besides these ontological and methodological varieties (for example, *epistemological naturalism*, according to which the empirical sciences can help us develop a theory of knowledge and *ethical naturalism*, according to which moral properties are reducible to facts about the natural world) but I will not focus on those here. Instead, my primary concern in this project will be to argue that methodological naturalists, besides holding that science is the only reliable method, should also accept that science can evaluate supernatural claims. They should not believe, as many methodological naturalists currently do, that supernatural claims lie outside of the evaluative boundaries of science. The type of methodological naturalism that I endorse, a methodological naturalism that assumes that science can evaluate the supernatural, is called *Provisory Methodological Naturalism.*

Why might a methodological naturalist, who values science as the only valid tool for discovering reality, disagree with me and argue that science is unable to evaluate supernatural claims? In this thesis, I will look at several reasons naturalists give for doing so. For example, one might argue that science cannot adequately function if it allows for the evaluation of supernatural claims. If science were to permit supernatural explanations, then the entire enterprise of science would be negatively impacted or quit working altogether. Or it may be that, because there does not appear to be any universal method for objectively

distinguishing the natural from the supernatural in our world, science would never be able to make pronouncements on the existence of supernatural objects. Since we have no accurate criterion by which we might determine a thing to be supernatural, we cannot say that science can prove the existence of supernatural objects. If one or both of these reasons are valid, then science must be cut off from evaluating any supernatural hypothesis.

Let us take the latter assertion, that we cannot objectively distinguish the natural from the supernatural. One can surely imagine a scenario where the categorization of, say, a newly discovered life form as natural or supernatural would be debatable. What characteristics would make it one or the other? Its origin? Its abilities? Its composition? There does not seem to be any way to know. There seem to be no objective standards for "supernatural-hood". The matter is complicated when we consider that the term "supernatural" can refer not only to objects like ghosts or demons but to phenomena and practices like extra-sensory perception, psychic healing, or *feng shui* as well. What qualifies things like ghosts or extra-sensory perception, as opposed to trees, as supernatural? Is it simply our lack of experience in observing them? Is it a property or characteristic of these things? If we hold that naturalists believe that *only natural things exist* while supernaturalists believe that *natural and supernatural things exist*, then these questions are obviously important. They are questions that both naturalists and supernaturalists must address. But while much has been written about the problem of demarcating science from non-science or pseudoscience, relatively little has been written about this problem of distinguishing natural objects or phenomena from supernatural objects or phenomena. I will attempt to rectify this in this work.

A naturalist who disagrees with me and believes that science is limited to discovering only natural things will address the above question by arguing that the distinction made between the natural and the supernatural is itself misguided. There is no need to distinguish the natural from the supernatural in our world because, by default, anything and everything we will ever observe will be natural. Being observable scientifically automatically qualifies a thing as natural. Thus, the methodological naturalist who restricts science from evaluating supernatural claims avoids the problem of distinguishing the supernatural altogether.

On the surface, this approach to methodological naturalism may seem appealing. It is certainly a popular view among naturalists. However, I will argue that it is incorrect.

While we have thus far only discovered natural things, the potential exists for science to observe and prove the existence of supernatural things in our world. Therefore, we cannot simply assume that everything that science discovers will be natural. Again, this is the Provisory methodological naturalist's view. Provisory Methodological Naturalism does not limit scientific evaluation to the natural realm, either by saying that science is incapable of recognizing supernatural objects like ghosts or demons or by holding that such things would be classified as natural objects were they ever discovered.

The distinction between these two methodological approaches is important. The approach that I oppose has lasting, real-world consequences. Perhaps nowhere are these consequences more obvious than in the debate between science educators and the creationist or "Intelligent Design" (ID) movement. Proponents of ID argue that the universe shows evidence of having been designed, perhaps by a supernatural agent. Moreover, these supporters go to great lengths to argue that theirs is a scientific rather than a religious theory. ID, according to its proponents, is a subfield of science. It is not, as many critics of ID insist, religion masquerading as science. All of this is meant to suggest that science could potentially uncover evidence of the creator (Crucially, it is also meant to suggest that ID should be taught in in publicly-funded schools' science classes). Per ID, science should be able to evaluate supernatural things. The supernatural should be within the purview of science and science should remain open to the possibility of supernatural objects. But ID proponents argue that this has not been the case. Because it is unjustly wedded to a biased methodological naturalism, science has shown no willingness to consider supernatural explanations.

I cannot defend ID as a theory since the science it is based on is spurious (Dawkins, 2015; Dembski and Behe, 2002). Moreover, while it is true that ID is not a religion, the view is certainly religious-based. ID undoubtedly prioritizes religious ideology over scientific theory. It attempts to justify the Creator-based accounting of the universe that is at the center of most prominent religions (Shermer, 2007). That said, the worry of ID proponents is justified. Many scientists and naturalists *are* problematically biased in favoring natural explanations. And "bias" may not even be a strong enough word. These individuals do not simply *prefer* natural explanations, they *assume* natural explanations. Science, they hold, can only ever observe natural things.

This assumption is so prevalent it was even cited in an important court decision against the teaching of ID in public schools. The following is excerpted from US District Judge John E. Jones III's decision in Kitzmiller v. The Dover Area School Board:

> Expert testimony reveals that since the scientific revolution of the 16th and 17th centuries, science has been limited to the search for natural causes to explain natural phenomena… While supernatural explanations may be important and have merit, they are not part of science… This self-imposed convention of science, which limits inquiry to testable, natural explanations about the natural world, is referred to by philosophers as "methodological naturalism" and is sometimes known as the scientific method (*Kitzmiller et al. v. Dover Area School Board*, Middle District of Pennsylvania, December 20, 2005).

According to the judge, methodological naturalism simply rules out supernatural explanations by fiat. The scientific method requires strict allegiance to natural explanations. ID proponents see this decision and correctly accuse those holding it of bias toward natural explanations.

Additionally, this requirement for natural explanations sets the stage for another problematic naturalist argument. Roughly, this argument is the following: "Science only ever observes natural things and, given its successes, we have cause to believe its reach is exhaustive. Additionally, science is also the only tenable method for discovering our world. As such, anything unobservable by science would need to be outside our world. Therefore, everything in our world must (always) be a natural thing. In other words, ontological naturalism must be unfalsifiable (irrefutable)." My intention with this project is to further the discussion of methodological naturalism by examining and refuting various arguments for this view.

Some naturalists may think that, by holding this restrictive methodological view, they remain neutral about supernaturalism. Or they even might think that, by prohibiting science from evaluating the supernatural, they are *helping* supernaturalists. Perhaps the lack of scientific data on the existence of the supernatural may not be that detrimental to supernaturalism if we hold that science cannot evaluate such claims in the first place. But insisting that science refrain from commenting on supernatural matters does not do supernaturalism any favors. A great many supernaturalists, many of whom are ID

proponents, value science (even if they misuse it or misinterpret its data). At the very least, they value being able to utilize scientific tools in their attempt to support their view. Denying them these tools by asserting that science is separate from the supernatural is wholly unfair. Furthermore, this methodological approach does not help naturalism either. Preventing scientific evaluation of the supernatural only lends support to the popular supernaturalist claim that science seeks to shut out or silence any opposition or competition to its method.

Granted, not all supernaturalists feel that science should be able to validate their views. Many supernaturalists are fine with the idea that science either cannot or does not confirm their beliefs. Nor is it the case that science being problematically biased invalidates the findings of science on something like evolution. Even if science unfairly leans toward naturalism, its findings may still be correct. Still, as a naturalist, it does not sit well with me to place limitations either on science (by restricting it to observing only natural things) or on objects in the world (by insisting that any observed object or phenomenon must be natural). Thus, I will defend a methodological approach to naturalism which does neither.

Distinguishing between these two approaches to methodological naturalism has a significant impact on the broader debate between science and religion. Specifically, it affects how that debate is framed. The general argument between science and religion has traditionally been thought to concern compatibility. Is science *compatible* with religion? Do any scientific claims conflict with religious beliefs? Approached from the methodological perspective I oppose, which has it that science is restricted from evaluating the supernatural, the debate between science and religion becomes a question of whether science and religion can co-exist within their respective spheres. We know that science and religion are not compatible in one sense because science can never prove the veracity of religious claims. That said, we can still ask whether science and religion are compatible with each other while remaining in their respective spheres. Do both science and religion offer something meaningful to the world or does one sphere negate the need for the other?

From the perspective of Provisory Methodological Naturalism, the debate might be reframed. The Provisory naturalist does not assume that science is cut off from the supernatural. Therefore, to her, the question may be more than simply whether science, in its own sphere, negates the need for religion. Since she holds that science can evaluate supernatural claims (with the assumption that truly supernatural phenomena might exist), the debate might become a question of whether science can support religious and other

supernatural claims. Might we ever prove *scientifically* that a supernatural soul exists, for example? Is there such proof and, if not, what does this say regarding religious claims about the soul? So, depending on whether the methodological naturalist holds that the truly supernatural is evaluable by science, her approach to the wider debate between science and religion may vary.

I should note that, because my primary concern is to advocate for the adoption of one *form* of naturalism over another, I will not devote space in this thesis to a general defense of naturalism over supernaturalism (or science over religion). Rather, I will take the truth of naturalism as given. Of course, this is a huge assumption to make; Many disagree with this conclusion. But one does not need to be a naturalist to find at least some merit in my argument. A supernaturalist may think that, while naturalism is wrong, my preferred form of naturalism is at least the right kind of wrong. Although my defense of naturalism assumes that only natural things exist, it at least leaves the door open for supernatural discovery. The alternative, meanwhile, holds that naturalism is and always will be true. Forced to choose between my naturalism and the alternative, mine is the lesser of two evils.

To summarize: There are right ways and wrong ways to be a naturalist. One form of methodological naturalism, Provisory Methodological Naturalism, has the right idea about the role of science as a method for discovering the world. Science can indeed discover truly supernatural objects or phenomena. The competing form, which prohibits such discovery, is wrong. Similarly, only Provisory Methodological Naturalism has the correct approach regarding ontology or, existing things. Provisory naturalists correctly assume that supernatural things are possible. The other form of naturalism requires the incorrect ontological assumption that supernatural objects are impossible.

II. Project Structure

I will begin this thesis by introducing the two opposing forms of methodological naturalism that will be the focus of this project. Each form will then be examined in greater detail in its own separate chapter. I will spend the four remaining chapters responding to arguments against my preferred form, Provisory Methodological Naturalism. Three of these four chapters focus on problems for Provisory Methodological Naturalism exclusively. The last chapter concerns a problem for methodological naturalism generally (i.e., both the Provisory form and its opposing form).

In Chapter One, I will introduce the various types of naturalism and supernaturalism. I have already noted two types of naturalism. These are methodological naturalism and ontological naturalism. There are two types of supernaturalism which correspond to these naturalisms. They are methodological and ontological supernaturalism. I will spend the first half of this chapter looking at ways in which these various methodological and ontological approaches might be combined. For example, one might consider oneself a naturalist with respect to methodology and a supernaturalist with respect to ontology. Or, one might be a supernaturalist with respect to both method and ontology. Alternatively, one can coherently believe in only natural things (ontological naturalism) and subscribe to the natural method (methodological naturalism). However, if one subscribes to the thesis that there are methods besides science that help us accurately discover the nature of the world (ontological supernaturalism), then one cannot also hold a natural ontology and believe that only natural things exist (ontological naturalism). Such a view is incoherent.

After examining these types and combinations of naturalism and supernaturalism, I will then focus more specifically on the naturalistic method. The two forms of methodological naturalism that I will concentrate on in this thesis are called Essential Methodological Naturalism and Provisory Methodological Naturalism. The former view holds that science is restricted to evaluating natural things. It is the methodological approach I noted above which holds that if something is evaluable scientifically, then that thing is automatically natural. I will argue that this approach should not be adopted by methodological naturalists. Rather, it is the latter view, which argues that science can observe truly supernatural objects, that should be adopted by methodological naturalists.

In Chapter Two, I will focus on Essential Methodological Naturalism exclusively. I will examine some of the arguments naturalists might give for adopting the problematic Essential Methodological Naturalist approach. Despite placing obvious restrictions on the purview of science, this approach to naturalism is widely accepted, even among scientists. Naturalists sympathetic to the Essentialist view might argue that this is because a methodological naturalism which restricts science from evaluating the supernatural leads to greater cooperation between naturalists and supernaturalists. Naturalists and supernaturalists might cooperate by mutually agreeing not to interfere with each other's domains. By assuring that science cannot evaluate the supernatural, naturalists guarantee that supernaturalists cannot in-turn interfere in science. Another argument for Essentialism holds that allowing science to evaluate supernatural claims would hinder the scientific

enterprise or prevent it from functioning entirely. I conclude that these and other arguments for Essential Methodological Naturalism are unsuccessful.

Chapter Three is devoted to the alternate methodological position, Provisory Methodological Naturalism, and the advantages this position holds over its rival. I will argue that this view is preferable in part because it allows that the naturalist thesis on ontology, the thesis that only natural things exist, may be proven wrong. In other words, Provisory Methodological Naturalism is preferable because it holds that ontological naturalism is falsifiable in our world and falsifiability is always more attractive than unfalsifiability. The alternative view, meanwhile, has it that only natural things can ever exist in our world. I will also argue that the Provisory approach to methodological naturalism is preferred because it assures that *real* cooperation can take place between naturalists and supernaturalists. Rather than immediately discounting the supernaturalist position, Provisory Methodological Naturalism assumes that supernaturalists might use the established tool of science and possibly validate their ontology. Granted, for the Provisory naturalist, the chance of this occurring is low. It is not a *strong* possibility that supernaturalists will use science to verify their ontology. But it remains a possibility nonetheless. This seems more in the spirit of cooperation than the alternative approach to cooperation noted above. Finally, I will show that Provisory Methodological Naturalism is beneficial because it allows as valid the idea that competent work on the supernatural has been done and will continue to take place. The Provisory naturalist knows that such work is not being done merely to prove the existence of unknown or undiscovered *natural* objects. Rather, such work could theoretically prove the existence of supernatural objects.

Starting with Chapter Four, the focus of my thesis will switch from the advantages of my methodological position to the supposed disadvantages of my view. Three chapters will be devoted to specific arguments against my preferred form of methodological naturalism. In each of the three chapters, I will propose a new argument against Provisory Methodological Naturalism. I will then provide responses in defense of my position. In Chapter Four, I will present an argument against Provisory Methodological Naturalism that uses inductive reasoning to defend the idea that ontological naturalism is unfalsifiable in our world. If ontological naturalism is unfalsifiable, then Provisory Methodological Naturalism is false (and Essential Methodological Naturalism is true). The problem with this approach, I will argue, is that inductive reasoning can never motivate Essential Methodological Naturalism. Inductive reasoning can only take us as far as possibility. However, the

Essential naturalist requires certainty in her view that science will only ever discover natural things. Therefore, an Essential methodological naturalist cannot use an inductive argument of this sort to defend her position.

In Chapter Five, I will return to the question of distinguishing between natural and supernatural things. One could argue that, unless the Provisory methodological naturalist can present a criterion for distinguishing between natural and supernatural objects, then her position is untenable. A naturalist who argues that science can theoretically observe supernatural phenomena over-and-above natural phenomena must be able to provide a method for distinguishing between the two categories. If she cannot, the argument goes, then her methodological approach is incorrect. I will look at several possible responses the Provisory naturalist might give. For example, one might respond that it does not matter whether a thing is deemed natural or supernatural. The only thing that matters is whether a thing is deemed to exist. Perhaps, despite the argument above, the Provisory naturalist is not required to devise a distinguishing criterion simply because she believes that the supernatural must be amenable to scientific evaluation. In that case, naturalism would then consist of the view that the only things which exist in the world are things which science deems to exist (with the possible presumption that science can discover all existing things).

However, a problem arises. We surely cannot discount the categories of natural and supernatural entirely. The question of distinguishing natural from supernatural is crucial for the naturalist. Naturalism must stand opposed to some other worldview (namely, supernaturalism). Otherwise, it would be pointless as a philosophical position. Nobody needs to subscribe to the toothless view that the only things that exist are all the things that exist. But this is, essentially, what this sort of naturalism would be. It is better, I will argue, to assume a *pragmatic* solution to the distinction problem. This solution holds that distinguishing between natural and supernatural things is necessary and that our current conceptions of natural things are sufficient for making this distinction.

In Chapter Six, I will present an argument which challenges the Provisory methodological naturalist claim that valid scientific work can be done on all supernatural phenomena which act in our world. Specifically, I will examine a paper written by John T. Chibnall, Joseph M. Jeral, and Michael A. Cerullo that argues that scientific experimentation cannot be done on the supernatural phenomenon intercessory prayer. I will then show that this argument is flawed. Provisory Methodological Naturalism holds that science can

evaluate such phenomena. Not only can it evaluate the phenomenon itself, science can also help us determine whether our philosophical position of ontological naturalism is false. Again, this last assumption is what separates my preferred form of methodological naturalism from its rival.

As noted above, I define methodological naturalism as the thesis that science is the best and only method for discovering reality. However, the methodological supernaturalist might argue that Provisory and Essential Methodological Naturalism, which both rely on this definition of methodological naturalism, are examples of scientism. A view might be labeled scientistic if it over-exaggerates the abilities of science, holds that the only real knowledge is scientific knowledge, or asserts that all disciplines are reducible to natural science. In short, scientism is overconfidence in science. The supernaturalist might assert that holding science to be the best and only method for discovering reality qualifies as overconfidence. In the last chapter, Chapter Seven, I will examine this argument. I will argue that it is in the Provisory naturalist's best interest to revise her approach to methodological naturalism to avoid falling prey to scientism. The Provisory methodological naturalist should not hold that science alone explains reality. The reason for this is that some elements of reality, things like art or morality, resist scientific explanation.

That said, while these things may resist scientific explanation, this does not mean they are supernatural. The Provisory methodological naturalist who is an ontological naturalist maintains that art and morality are natural phenomena with natural origins. So, the Provisory naturalist needs to offer some means by which to explain these elements naturally. I will present a naturalist approach by which they may do this. This approach is known as pluralism. Pluralism assumes that science and other cultural practices like art and morality together represent the best and only method to explain reality. These other cultural practices are not explained by (i.e., do not reduce to) science. But nor do they have a supernatural explanation. They are wholly natural practices. I will conclude the chapter by combining the methodological naturalist approach that prohibits reducing reality to scientific theory (pluralism) with the methodological naturalist approach that prohibits restricting science to the natural realm (Provisory Methodological Naturalism). These two views together create a pluralist Provisory Methodological Naturalism.

1. Forms of Methodological Naturalism

1.1 Introduction

Methodological naturalism is generally thought to be the thesis that science is the best and only method for discovering the properties of reality. My focus in this project will be on defending one form of methodological naturalism against the rival form. However, because methodology and ontology are so closely linked and usually combined (we use a method or methods to determine the set of things we believe exist), it may be helpful to first conduct a brief investigation into how methodology and ontology generally relate to one another before jumping into a more exclusive discussion of method. I will consider two types of methodology, *naturalistic methodology* and *supernaturalistic methodology* along with the two types of ontology, *naturalistic ontology* and *supernaturalistic ontology*. I will begin by establishing which combinations of methodology and ontology can be held consistently by the naturalist and supernaturalist. Not all combinations of methodology/ontology types are viable. Once this has been done, I will separate methodological naturalism into two forms and discuss various attributes of each.

This chapter has the following structure: In Section 1.2, I will begin by briefly defining terms. In Section 1.3, I will discuss the relationship between the various methods and ontologies. Despite the regularity with which individuals who identify as "naturalists" hold both methodological naturalism and ontological naturalism, the presence of methodological naturalism does not entail the presence of ontological naturalism. For instance, one can hold methodological naturalism, saying that science is the best and only method for discovering the properties of reality, while simultaneously being an ontological supernaturalist and believing that supernatural objects exist. Additionally, not all combinations of supernaturalistic and naturalistic ontologies and methodologies are viable. Some are contradictory. In the end, only three such combinations are coherent. Once these three ways in which methodology and ontology can interact has been established, I will then, in Section 1.4, examine methodological naturalism itself. I will primarily concentrate on two forms of methodological naturalism. The first form, Essential Methodological Naturalism, places certain limits on science. It holds that science is essentially limited to natural explanations. As a result, science is prevented from evaluating supernatural objects. The alternative to this form is Provisory Methodological Naturalism. This approach holds that science is not limited to natural explanations and can indeed evaluate supernatural

objects. Section 1.5 concludes the chapter by briefly summarizing the concepts and terminology introduced.

1.2 Terminology

In this thesis, I will be focusing on the following two varieties of naturalism:

> *Ontological naturalism*: The thesis that only natural things exist.
>
> *Methodological naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists.

The first variety of naturalism above tells us something about the make-up of the world and what it contains while the second variety suggests how we should best interact with the world to further our knowledge and understanding of it. These two theses may be contrasted with:

> *Ontological supernaturalism:* The thesis that supernatural things exist.
>
> *Methodological supernaturalism:* The thesis that non-natural or, supernatural methods allow us to discover the properties of reality and what exists. [1]

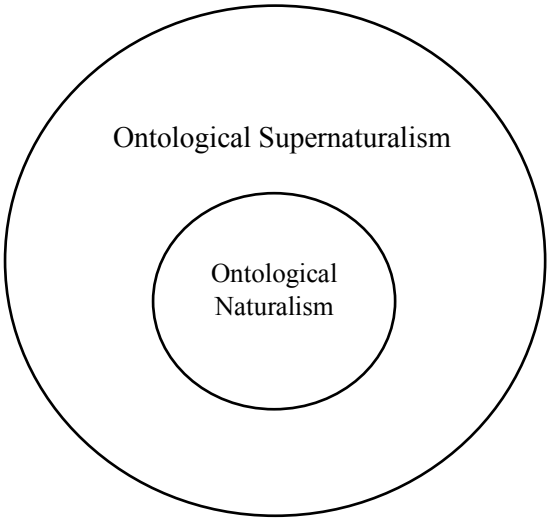
Again, the first variety of supernaturalism tells us something about the make-up of the world while the second variety suggests how we should best interact with it. Ontological supernaturalism obviously differs from its naturalistic counterpart in its inclusion of supernatural objects. However, we should be careful to note that this inclusion can come about in one of two ways. The first way to include supernatural objects in an ontology is to hold that *only* supernatural objects exist. So, like the way the ontological naturalist denies the existence of supernatural things and holds that only natural things exist, this particular ontological supernaturalist would deny the existence of natural things and hold that only supernatural things exist. She would, for example, deny the existence of trees while

[1] In this thesis, I will take the terms "non-natural" and "supernatural" to be synonymous. However, some distinguish between them. Those who do often define "non-natural" things as "those things manufactured by humans" (as opposed to "natural things" which are "those things produced by nature"). "Supernatural things", which, obviously, does not refer to things manufactured by humans, would then require its own separate definition. Work that acknowledges the distinction includes (Clarke, 2007) and (Luck, 2007).

accepting the existence of ghosts (Or, perhaps more likely, she would hold that things like trees which are normally thought to be natural objects are in fact supernatural objects).

The second way to include supernatural objects within an ontology is to hold that supernatural objects exist *in addition to* natural objects. This type of ontological supernaturalist would say that ghosts exist but trees exist as well. A supernaturalistic ontology of this sort is more encompassing than the naturalistic one. It contains all the objects of ontological naturalism *plus* objects that the naturalistic ontology rejects. For example, it includes trees, chairs, and planets but also demons and the Judeo-Christian God. We might imagine the objects of the naturalistic ontology as contained within a circle. Surrounding this circle is a larger circle containing the objects of this less restrictive supernaturalistic ontology. The larger circle includes all the members of its own set along with the members of the naturalistic ontology set.

Figure 1.1



Since the first way to include supernatural objects in an ontology is not commonly defended (few will deny the existence of natural objects including such things as chairs, tables, particles, etc. or hold those things to be supernatural), I will set it aside and assume an ontological supernaturalism which takes the second, less restrictive way.

The second variety of supernaturalism listed above, methodological supernaturalism, has something in common with methodological naturalism. Again, it too suggests how we should best interact with the world to further our knowledge and understanding of it. Also, like ontological supernaturalism, methodological supernaturalism

can be realized in two different ways. The first way holds that *only* non-natural methods allow us to discover the properties of reality and what exists. So, for example, only religious revelation and not physics can tell us about the properties of reality. The second way methodological supernaturalism may be realized assumes that supernatural methods *in addition to* science allow us to discover the properties of reality. So, for example, scientific experimentation leads to valid new discoveries about the nature of the world but the reading of tea leaves does as well.[2] The first methodological approach is not commonly defended. To require methodological supernaturalism to hold that only supernatural methods are viable is too strict. The scientific method has proven much too fruitful to disregard entirely. Most supernaturalists recognize this and have found ways to reconcile their supernaturalistic methodologies with science. Therefore, when discussing methodological supernaturalism, I will be referring to the second version which holds that certain supernatural methods are fruitful but the natural method of science is fruitful as well.

One final terminological note: Both ontological naturalism and ontological supernaturalism are sometimes referred to as *metaphysical* positions. Often the terms *metaphysical naturalism* and *metaphysical supernaturalism* are used instead of "ontological". However, both "ontological" and "metaphysical" refer to the same thing, a view on what exists in the world. Similarly, some prefer to use the terms *epistemological naturalism* or *epistemological supernaturalism* instead of methodological naturalism and supernaturalism. Again, the meanings are the same. In this case, both "methodological" and "epistemological" refer to how we know what exists in the world.

1.3 Methodology and Ontology Combinations

Sometimes discussions of naturalism result in the conflation of ontological and methodological naturalism. When this happens, "naturalism" is meant to imply *both* a set of believed-in objects as well as a method for determining the members of that set. Additionally, given the considerable number of methodological naturalists who are also ontological naturalists, some people might assume that ontological naturalism suggests methodological naturalism or vice-versa. A fair amount, perhaps even most, of the people

[2] We can draw a parallel to Figure 1.1 for methodological supernaturalism and methodological naturalism in which the former is a large circle surrounding the smaller circle of the latter. Methodological supernaturalism is the larger set which also includes the viable method (science) that is in methodological naturalism set.

who would label themselves ontological naturalists also consider themselves to be methodological naturalists since they see science as the best and only method for discovering reality. Likewise, most methodological naturalists hold that correct interpretation of scientific findings should be the basis of a rejection of supernatural objects.

However, we cannot assume that ontological naturalism and methodological naturalism will accompany each other in every case. And because of this, we cannot assert that one entails the other. Take, for example, the atheist parapsychologist who believes in ghosts. This is someone who does not hold any religious belief and who works to apply naturalistic methods to study and prove the paranormal. Unlike many theists, this atheist parapsychologist would not utilize a supernatural methodology such as religious experience or biblical revelation. Instead, she would use a naturalistic method to inform her supernaturalistic ontology. Science, in her view, reveals the existence of supernatural objects. Thus, the simple application of the naturalistic method does not entail a resulting naturalistic ontology as some might believe.

One's methodology plays a role in determining one's ontology. For example, one might use the method of science to discover the existence of a new particle. After discovery, that particle becomes part of that person's (and others with knowledge of the particle's existence) ontology. Likewise, supernaturalists have long supported a belief in the existence of God with the argument that the method of prayer reveals Him to them. The method of prayer, therefore, plays a role in determining the nature of the supernaturalist's ontology. It is important to keep this methodology/ontology dependence in mind as we chart the various methodology/ontology combinations:

Figure 1.2

Combination 1: Methodological Naturalism and Ontological Naturalism	Combination 2: Methodological Supernaturalism and Ontological Naturalism
Combination 3: Methodological Naturalism and Ontological Supernaturalism	Combination 4: Methodological Supernaturalism and Ontological Supernaturalism

Of these four combinations, Combination 2, the pairing of methodological supernaturalism with ontological naturalism, is problematic. It requires us to assume that a

naturalistic ontology does not preclude a supernatural methodology. In other words, it states that it is possible to hold the belief that methods other than science can help us discover the properties of reality while simultaneously holding the belief that only natural things exist. Some might argue that this is indeed possible to do. Such individuals could believe that science is one method, maybe even the best method, for uncovering truths, but that there are other methods as well, such as meditation and religious or spiritual inspiration. And these other methods reveal (only) natural truths about the world. These individuals would ostensibly be using supernatural methods while maintaining a naturalistic ontology.

But there are problems with the combination of supernaturalistic methodology and naturalistic ontology generally. This is because to be a methodological supernaturalist, one needs to assume the existence of non-natural things. The use of religious experience to understand the properties of reality, for example, usually sees an accompanying belief in a deity or deities from whom the understanding originates and from whom the knowledge is gained. If not a god or gods, at least some sort of outside supernatural force is needed to supply the knowledge.[3] If the knowledge is not derived from some existing non-natural object or phenomenon then it is knowledge derived naturally, and religious experience would be methodological naturalism rather than methodological supernaturalism. To take another example, divination is a supernatural methodology in which insight is gained through tarot cards or other tools. Practitioners of this method appeal to non-natural spiritual forces or a collective unconscious for knowledge and, therefore, a belief in these is required if one is to be thought of as truly practicing the supernatural method of divination. If the force or collective unconscious were believed by the practitioner to be natural phenomena, divination would be a natural method. Therefore, methodological supernaturalism entails a belief in non-natural things or, ontological supernaturalism. This is true even though we previously saw that methodological naturalism does not entail ontological naturalism (e.g., the atheist parapsychologist).

So, by discarding the untenable combination of methodological supernaturalism and ontological naturalism, we are left with three viable methodology/ontology combinations:

[3] Admittedly, the relation the supernatural object stands in to the knowledge transmitted here is unclear. It may be that different methods see the supernatural object standing in different relation to the knowledge. For example, one method may allow knowledge to be actively derived from the object while another allows for the practitioner to appeal to the object for knowledge (passively-derived knowledge). However, we might posit that, at the very least, a supernatural entity is required if a supernatural method is to be reliable. This is because (1) such an entity explains the reliability of the method, (2) there must be an explanation for the reliability of any reliable method, and (3) no natural explanation for the reliability is available.

Figure 1.3

Combination 1: Methodological Naturalism and Ontological Naturalism	Combination 3: Methodological Naturalism and Ontological Supernaturalism	Combination 4: Methodological Supernaturalism and Ontological Supernaturalism

Combination 1, methodological naturalism paired with ontological naturalism, is held by a majority of working scientists according to Pew Research polling (Pew Research Center, 2009). It is the position I assume in this thesis. This combination holds that science is the best and only method for discovering reality and that only natural things exist.

The atheist parapsychologist noted above is an example of someone holding Combination 3. Here, a naturalistic method is said to entail a supernaturalistic ontology. In other words, science alone tells of our world and it tells us that supernatural objects exist. Unlike Combination 2 in Figure 1.2, this combination is not immediately incoherent. In fact, I will argue later, when I discuss my preferred form of methodological naturalism, that science could indeed prove the existence of supernatural objects were they to exist. Last is Combination 4, the combination of supernaturalistic method and supernaturalistic ontology. This too is not an uncommon view. The average tarot practitioner, moderate religious observer or astrologer qualifies as this combination. All that is needed is a belief that a particular supernatural method, perhaps religious revelation or astrological charting, is at least as reliable as science in uncovering the properties of reality. This method is then coupled with a belief in the existence of supernatural objects or phenomena.

One may question what it is, exactly, that makes a method reliable. Here naturalists and supernaturalists may disagree. Naturalists and supernaturalists may have different ideas about which characteristics are required for reliability. Or they may agree on what potentially qualifies a method as reliable but disagree on whether said method meets those qualifications. For our purposes here, I would argue that a method is reliable if it is inherently repeatable and yields consistent results.

1.4 Methodological Naturalism

In the preceding section, I attempted to paint a clear picture of the relationships between naturalistic and supernaturalistic methods and ontologies. With these relationships in mind, we can now focus on the naturalistic method. Again, our definition of methodological naturalism is:

> *Methodological naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists.

Natural science is thought of as the *best* method because it has proven more fruitful than other methods at discovering the properties of reality and what exists. Science has given us tools to chart our place in the solar system and discover the basic building blocks of life, for example. Other, non-natural methods such as extra-sensory perception, for example, are not as successful at revealing such truths about our world. Additionally, for methodological naturalists, no method other than science can be considered reliable and so science is also thought of as the *only* method by which to accurately discover the properties of reality. [4]

My definition above concerns the appropriateness of science in its application to all of reality. It also notes science's privileged position ahead of every supernatural methodology. But there are other ways to define 'methodological naturalism'. An alternative (but quite common) definition is given by Maarten Boudry, Stefaan Blancke and Johan Braeckman (hereafter, 'BBB'):

> According to [methodological naturalism], science is strictly limited to investigating natural causes and putting forth natural explanations. Lacking the tools to evaluate supernatural claims, science must remain studiously neutral on questions of metaphysics (Boudry et al., 2012, p. 1151).

The differences in the two definitions are worth noting. While my definition of 'methodological naturalism' focuses on the relevance of science and its place in the hierarchy of methods, BBB's definition concentrates on the application of science and establishing the limits of science's purview. My definition places science at the apex of all existing methodologies and implicitly argues for its adoption. BBB's definition sets boundaries: BBB hold 'methodological naturalism' to be the thesis that science is only

[4] "Best and only" would be redundant if "only" implied that there were no other, less reliable methods available. If something is the only method available, it would, necessarily, be the best. But here I mean "the only method *for accurately discovering the properties of reality*". I do not mean the only method simpliciter.

useful within the natural realm. Additionally, according to the BBB definition, science itself remains agnostic with regards to supernatural ontology. I will label mine the *hierarchical definition* of 'methodological naturalism' and the above BBB definition the *restricting definition*.

With these definitions in mind, we can say that one or more of the following traits are commonly attributed to methodological naturalism:

(1) Supremacy of science: Science is the best and only method for discovering the properties of reality and what exists. All other tools are either less than the best (less accurate, faulty) or are incapable of discovering the properties of reality and what exists.
(2) Restriction of science: Science is restricted to evaluating only the natural realm. Science lacks the tools to evaluate supernatural objects.
(3) Agnosticism of science: Science must remain neutral on questions of metaphysics. The supernatural, if it exists at all, occupies a realm outside of science. Science must always remain agnostic with respect to supernatural ontology. It can suggest neither ontological naturalism nor ontological supernaturalism.

My hierarchical definition of 'methodological naturalism' only obviously incorporates (1). In fact, I hold that 'methodological naturalism' simply *is* the thesis detailed in (1). BBB, meanwhile, incorporate both (2) and (3) in the restricting definition of 'methodological naturalism' they give above. Again, that definition restricts science to the natural realm and divorces science from ontological commitments. We should note that, although BBB's *definition* does not incorporate (1), it seems possible that they, as methodological naturalists would still hold or *endorse* (1). So, even though their definition differs from my own, they may still view it as an acceptable trait of methodological naturalism.

While BBB and other methodological naturalists may accept (1), they may differ over the inviolability of the other two traits. For example, the restricting definition holds methodological naturalism to involve the restriction of science to the natural realm (2). But we might question the truth of (2). Is science really prevented from evaluating supernatural objects? If (2) is not true, would methodological naturalism be false? The same questions might be asked of (3) and science's purported agnosticism regarding ontology. Is science really prevented from making pronouncements with regards to ontology? If science can tell us whether supernatural things exist, does that mean that methodological naturalism is false?

These questions bring to the forefront methodological naturalism's role in science: If science is restricted to the natural realm (2) and must be agnostic with regards to ontology (3), then methodological naturalism's role is to limit science. According to this conception of methodological naturalism, science cannot tell us that ontological naturalism is true (or false). But maybe science is not so restricted. Perhaps methodological naturalism should instead be defined as a tentative commitment to natural explanations. As methodological naturalists, we are tentatively committed to the idea that only natural explanations are viable. But, being tentative, such a commitment is revocable. Should circumstance warrant it (say, proof of the supernatural is discovered), then the commitment to natural explanations could be revoked. In this case, methodological naturalism's role is as a provisional attitude of science. Methodological naturalists of this persuasion do not look at traits (2) and (3) as inviolable. Instead, they acknowledge that supernatural explanations have simply failed in science. The supernatural is not beyond science and science is not restricted from evaluating supernatural objects. Rather science can evaluate said objects and has found all claims of their existence to be false or lacking.

The remainder of this chapter will examine three distinct approaches to methodological naturalism. The first approach to methodological naturalism holds that science *is* limited to the natural realm and cannot evaluate supernatural objects. In other words, this approach assumes the truth of (2). In answer to the above question concerning whether methodological naturalism would be false if (2) were not true, those who adopt this approach would answer affirmatively. This first approach also assumes that science must be agnostic with regards to ontology (3). BBB call this version of methodological naturalism *Intrinsic Methodological Naturalism* and I will discuss it in more detail in the next section (1.4.1). Using the above description, we can define Intrinsic Methodological Naturalism in the following way:

> *Intrinsic Methodological Naturalism*: The thesis that science is restricted to evaluating the natural realm (i.e., unequipped to evaluate supernatural objects) (trait 2). Additionally, science is agnostic about the existence of the supernatural (trait 3).

Intrinsic Methodological Naturalism appears to be coherent (although it is important to note that neither BBB nor I endorse this form of methodological naturalism). However, it will not be focused on much in this thesis. In fact, after briefly examining it I will set it

aside indefinitely. The reason for doing this concerns Intrinsic Methodological Naturalism's commitment to the idea that science must remain agnostic with regards to ontology (3). In Section 1.4.2 I will discuss two problems associated with the utilization of trait (3). These problems concern the use of trait (3) both in this thesis specifically and for methodological naturalists generally.

In Section 1.4.3 I will discuss the second approach to methodological naturalism. I call this version, *Essential Methodological Naturalism*. Like Intrinsic Methodological Naturalism, Essential Methodological Naturalism holds that science cannot evaluate supernatural objects since science is limited to the natural realm (2). However, Essential Methodological Naturalism differs from Intrinsic Methodological Naturalism in that it does not hold that science must always remain neutral on questions of metaphysics (3). This leaves the door open for the Essential naturalist to use science as support for their ontological view. Also, rather than accept the restricting definition of methodological naturalism, as Intrinsic naturalism does, Essential naturalism accepts my own hierarchical definition of methodological naturalism (1).

> *Essential Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) and that science is restricted to evaluating the natural realm (i.e., unequipped to evaluate supernatural objects) (trait 2).

Finally, in Section 1.4.4 I will introduce the third approach to methodological naturalism. The third approach to methodological naturalism differs from the first two approaches in that it dismisses (2). It holds that science is not restricted to the natural realm and can indeed evaluate supernatural objects. BBB call this form *Provisory Methodological Naturalism*. I hold that Provisory Methodological Naturalism accepts the claim that science is the best tool for discovering the properties of reality (1) but it rejects the claims that science is limited to the natural realm (2) and that science must always remain agnostic with respect to supernatural ontology (3). Thus, I define Provisory Methodological Naturalism in the following way:

> *Provisory Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) and that science can *provisionally* evaluate supernatural objects.

It is this third approach to methodological naturalism which I will set out to defend (against the Essential Methodological Naturalism alternative) in the remainder of this thesis. [5]

Figure 1.4

Form of Methodological Naturalism	**Trait 1**	**Trait 2**	**Trait 3**
Intrinsic Methodological Naturalism	Rejects	Accepts	Accepts
Essential Methodological Naturalism	Accepts	Accepts	Rejects
Provisory Methodological Naturalism	Accepts	Rejects	Rejects

1.4.1 Intrinsic Methodological Naturalism

The first approach to methodological naturalism holds that science is only equipped to tell us about the natural world. Science cannot evaluate supernatural objects. This first approach assumes that trait (2) is true. But it also assumes that (2) provides overwhelming grounds to believe (3). In other words, the restriction of science to the natural realm provides grounds to accept the divorce of science and ontology. Because science is limited to the natural realm and cannot evaluate supernatural objects, science cannot commit to ontological naturalism or ontological supernaturalism. We cannot use science to evaluate supernatural objects or phenomena because science is not equipped to tell us about things like God, ghosts or the soul. In their examination of methodological naturalism, BBB refer to a methodological naturalism which assumes traits (2) and (3) (or, we might say, a methodological naturalism which holds that science is beholden to those two traits) as Intrinsic Methodological

[5] Gregory Dawes makes a similar distinction to the one here between Essential and Provisory Methodological Naturalism. His distinction concerns objections to proposed religious explanations. According to Dawes, a *de facto* objection to religious explanations "accepts that a religious explanation may be a potential explanation of some fact about the world. But it denies that any theistic explanation meets the other criteria that would warrant our regarding it as true" (Dawes, 2009, p. 29). This mirrors Provisory Methodological Naturalism. Meanwhile, an *in principle* objection to religious explanations holds that "no theistic explanation is an *actual* explanation… [N]o proposed theistic explanation could even be a *potential* explanation" (Ibid.). This is similar to Essential Methodological Naturalism.

Naturalism. According to BBB, Intrinsic methodological naturalists believe that methodological naturalism is "an intrinsic and self-imposed limitation of science…something that is part and parcel of the scientific enterprise *by definition*" (Boudry et al., 2010, p. 229). Again, I define Intrinsic Methodological Naturalism as follows:

> *Intrinsic Methodological Naturalism*: The thesis that science is restricted to evaluating the natural realm (i.e., unequipped to evaluate supernatural objects) (trait 2). Additionally, science is agnostic about the existence of the supernatural (trait 3).

I will provide an example of Intrinsic Methodological Naturalism (traits 2 and 3) shortly. However, it may help to first look at a case in which trait (2) alone is used to defend methodological naturalism. In Richard C. Lewontin's review of Carl Sagan's book, *The Demon-Haunted World*, Lewontin writes

> It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our *a priori* adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door (Lewontin, 1997).

According to Lewontin, scientific investigation involves a strict "adherence to material causes". Because of this, all explanations by science will necessarily involve and/or refer to material things (Although he never explicitly says as much, Lewontin's 'materialism' appears to be synonymous with my definition of 'naturalism' and the two terms appear interchangeable. At the very least it seems likely that my definition of 'naturalism' encompasses Lewontin's 'materialism', i.e., anything that is material is also natural). Science, according to Lewontin in the above quote, has no room for the non-material or non-natural. Lewontin says nothing with regards to agnosticism and ontological commitment so I will refrain from categorizing his view as Intrinsic Methodological Naturalism *per se* (as opposed to the alternative version I will introduce later). But he does at least assume (2) and, therefore, Lewontin's position falls under either this form of methodological naturalism or the one I will introduce in the following section.

However, someone who more explicitly assumes the *Intrinsic* version of methodological naturalism is Eugenie Scott. She makes it clear that she accepts the truth of (2), a position she calls 'methodological materialism' (Scott, 1998, p. 20). But she also writes, "Science is a way of knowing that attempts to explain the natural world using natural causes. It is agnostic toward the supernatural- it neither confirms nor rejects it" (Scott, 2003, p. 111). In making these claims Scott clearly accepts the truth of (3) along with (2) and so adopts the two assumptions made by BBB's proposed first form of methodological naturalism, Intrinsic Methodological Naturalism.

We might wonder why a form of methodological naturalism which places such restrictions on science would appeal to methodological naturalists. Under Intrinsic Methodological Naturalism, not only is science restricted to operating in the natural realm but, seemingly because of this limitation, it cannot even maintain a position regarding which types of things exist. In the next chapter, I will examine arguments for a methodological naturalism which incorporates the restriction trait (trait 2). These arguments will hopefully shed light on why many scientists feel restricting science to the natural realm is advantageous or even necessary. As far as the agnosticism of science to ontology (trait 3) goes, one apparent advantage of an agnostic methodological naturalism of the sort BBB defines is that it allows the naturalist to remain neutral on the stickier questions of ontology or metaphysics. For example, an Intrinsic methodological naturalist's science cannot be immediately linked to atheism if said science refuses to take a stand on ontological naturalism and the question of whether atheism is true. Certain methodological naturalists might want to keep science and atheism separate and may feel that having science remain neutral with regards to ontology allows them to do that.

The fact that many scientists consider the question of God to be outside the purview of science is evidenced by the following quote from David Johnson. Johnson was the lead author of a study published in *Public Understandings of Science* examining scientists' attitudes about religion. In an article about the study written shortly after its publication he states

> "Scientists differ in their view of where such borders [between science and religion] rest. And they may even view belief in a deity as irrational, but they do not view questions related to the existence of deities or 'the sacred' as within the scope of science" (Griffin, 2016).

Many, perhaps even most of the scientists involved in the above-referenced study would identify as methodological naturalists. However, despite their personal beliefs, many also hold that science cannot validate belief or non-belief in the supernatural. According to them, science can neither prove nor disprove God. And thus, contrary to the assertions of some theists, science should not be linked to or equated with atheism. The article goes on to detail many British scientists' dislike of popular evolutionary biologist and prominent atheist, Richard Dawkins. Dawkins, many of the scientists believe, incorrectly argues that science can and does rule out a supernatural deity.[6]

Besides its contentious assumption of trait (2) (an assumption which I will explore in more detail when I look at arguments for and against the different forms of methodological naturalism), there are reasons why Intrinsic Methodological Naturalism will not work for our purposes in this thesis. I will now look at two problems associated with its use here. Both problems concern Intrinsic Methodological Naturalism's acceptance of trait (3) and the notion that science must be agnostic with respect to supernatural ontology. The first problem concerns the fact that one particularly interesting argument (that I will introduce later) for methodological naturalism requires acceptance of trait (2) but not trait (3). As such, that argument will only work for Essential Methodological Naturalism and not Intrinsic Methodological Naturalism. The second problem concerns the idea that acceptance of trait (3) appears to prevent methodological naturalists who are ontological naturalists from justifying their ontological naturalism. If their method (science) must remain agnostic with regards to the existence of supernatural objects, it seems they have no solid justification for their personal ontological naturalism.

1.4.2 Problems with Intrinsic Methodological Naturalism

Intrinsic methodological naturalists argue that science cannot pronounce on whether supernatural things exist. Science is a natural method but it cannot make definitive claims regarding the existence or non-existence of supernatural objects. However, an argument which I will explore in the next chapter denies this. This argument holds that it is true that

[6] Assigning this belief to Dawkins is highly questionable. Dawkins argues that science, particularly the scientific process of evolution through natural selection, provides natural explanations for questions which were previously assumed to be answerable only by invoking supernatural processes. This makes the God hypothesis highly unlikely although not impossible. Dawkins may assume that science can evaluate supernatural claims (although he neglects to offer an argument in support of this) but he never states, at least in his published work, that science conclusively disproves ontological supernaturalism (Dawkins, 2007).

science is limited to the natural realm and cannot evaluate supernatural objects (trait 2). But this does not mean that science must be agnostic with regards to ontology (trait 3). Rather, because science is limited to only evaluating natural objects, everything which science evaluates must be a natural object. Assuming there are no non-observable objects in our world (or, that science can observe everything in our world), then everything in our world must be natural. Ghosts, were they to be discovered, would be natural objects, for example. The same would hold true for other objects currently considered to be supernatural. Per this argument, ontological naturalism is seemingly unfalsifiable in our world.

Regardless of its merits, I believe this is an argument worth exploring. However, to do so, as previously noted, requires us to substitute Essential Methodological Naturalism for Intrinsic Methodological Naturalism. This is because Intrinsic Methodological Naturalism expressly forbids science from pronouncing on ontology while Essential Methodological Naturalism does not. The argument I will explore involves a leap from scientific observation to an ontological claim, namely the claim that ontological naturalism is true in our world. By neglecting to accept trait (3) along with trait (2) the Essential methodological naturalist can make this argument while the Intrinsic methodological naturalist cannot.

The second problem in utilizing a methodological naturalism which holds that science cannot pronounce on ontology is that it is not clear what justification such methodological naturalists would have for their personal ontologies if science itself cannot tell us whether supernatural objects exist. Consider the following quote from Eugenie Scott, the scientist previously identified as an Intrinsic methodological naturalist:

> If science is restricted to methodological materialism, it must ignore the possibility or impossibility of divine interference. Wearing my personal philosophy hat, I can say that I don't think there is a God or gods or any other supernatural powers. I can say wearing my scientist hat that I don't see evidence of supernatural interference in nature…but I cannot as a scientist say "There is no supernatural interference in nature" (Scott, 1998, p. 20).

Given the above quote, we can assume Scott to be an ontological naturalist as well as an Intrinsic methodological naturalist. She does not believe in the existence of gods or supernatural powers. But we might question the justification for her personal ontology if it is not the method of science. Presumably, the *lack* of scientific evidence she cites for the

existence of supernatural interference in nature is a driving factor for her own ontological naturalism. But if her method of science is required to remain agnostic about the existence of supernatural objects then it seems that her ontology, informed by said method, should be agnostic as well. If it is a lack of scientific evidence for a particular hypothesis that forces an individual to claim that said hypothesis is likely false, then that is indeed science indirectly pronouncing on ontology. Thus, it is unclear how Scott can reconcile her personal ontological naturalism with a methodological naturalism that holds that science cannot provide answers with regards to ontology.[7]

Perhaps Scott's justification for her own ontological naturalism coupled with Intrinsic Methodological Naturalism is something like the following: "Science shows no evidence of the supernatural, therefore ontological naturalism is likely true. The method of science suggests ontological naturalism in this way. However, one cannot say that science *proves* there is no God or that science proves ontological naturalism. Therefore, science must be agnostic with regards to ontology. As such, one may hold that only natural things exist while simultaneously believing that science cannot tell us whether only natural things exist."

The problem with this reasoning is that science does not need to go so far as to prove a particular ontology in order to avoid being agnostic about it. We do not need to adopt Scott's agnosticism simply because science cannot prove ontological naturalism. As noted above, a method such as science arguably *suggests* ontological naturalism. Such a suggestion may not be proof, but it is certainly not a position of agnosticism either. Because of this, Scott's science is not really agnostic with regards to ontology. She leans toward ontological naturalism as a 'personal philosophy' because this is what her science unequivocally suggests. I am aware that this is not an uncontroversial claim and that much space may be devoted to arguments for and against this view. That said, I believe it is a justifiable position to maintain. A similar argument could be made for the assumption of atheism itself (over agnosticism): One does not need to claim *knowledge* that there is no God to qualify as an atheist rather than an agnostic. One who simply argues that the lack of evidence suggests that there is no God may still label herself as an 'atheist'.

[7] Science does not need to be agnostic with regards to ontology but nor does science *require* ontological naturalism. As I will argue, science can *provisionally* pronounce on ontology. A provisional pronouncement is subject to change. The view that science requires naturalism is an example of scientism and is unwarranted. I will discuss scientism further in Chapter Seven.

The belief that the lack of evidence suggests there is no God is encompassed in the broader belief (expressed by Scott) that the lack of evidence suggests there are no supernatural objects. In both cases, the lack of evidence obtained via the method of science can lead to the adoption of non-agnostic stances (atheism or ontological naturalism). So, it seems that Scott's science is not agnostic with regards to ontology and the assumption that definitive proof is required for one to pronounce on ontology is incorrect.

Given the above issues with Intrinsic Methodological Naturalism or, a methodological naturalism which requires traits (2) and (3), I will utilize an alternative form of methodological naturalism for the remainder of this thesis. Like Intrinsic naturalism, Essential Methodological Naturalism holds that science is limited to evaluating the natural realm and cannot evaluate supernatural objects. However, Essential naturalism differs from Intrinsic naturalism in that it does not restrict science from making pronouncements on ontology. Because it neglects to adopt (3), Essential Methodological Naturalism will allow us to explore the interesting argument alluded to above for this type of methodological naturalism. The Intrinsic version prohibits this argument. Additionally, Essential Methodological Naturalism avoids the concerns raised regarding personal ontology and (3).

It is important to note that Essential Methodological Naturalism is not the form of methodological naturalism I will ultimately defend (that form, as noted, is the third alternative, Provisory Methodological Naturalism). However, I believe that Essential Methodological Naturalism is the strongest challenger to my preferred form.

1.4.3 Essential Methodological Naturalism

The Intrinsic methodological naturalist holds that science can only tell us about natural things. Science is silent on the existence of supernatural objects. This silence allows it to remain neutral with regards to ontology and metaphysics and to avoid sticky conclusions such as atheism. However, given the issues discussed in the previous section, a substitute form of methodological naturalism which accepts trait (2) but abandons trait (3) is needed. Like Intrinsic Methodological Naturalism, Essential Methodological Naturalism argues that science cannot evaluate supernatural objects. However, instead of attaching itself to the restricting definition of 'methodological naturalism' which prevents science from pronouncing on ontology (trait (3)), Essential Methodological Naturalism follows my own definition (trait (1)). The Essential methodological naturalist holds that science is the best

tool for discovering the properties of reality. Although she believes that science cannot evaluate supernatural objects, the Essential methodological naturalist is not prevented from recognizing, as noted above, that everything observed naturally via science is natural. If science observes a thing, that thing must be natural. Thus, the Essential methodological naturalist maintains ontological naturalism. Recall that we define Essential Methodological Naturalism as follows:

> *Essential Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) but that it is restricted to evaluating the natural realm (i.e., unequipped to evaluate supernatural objects) (trait 2).

The argument by which the Essential methodological naturalist might defend unfalsifiable ontological naturalism will be discussed in the next chapter. For now, though, we might wonder how Essential Methodological Naturalism differs from the methodological naturalism I will discuss in the next section (Provisory Methodological Naturalism). It may seem like Essential Methodological Naturalism is no different from Provisory naturalism if it too allows for pronouncements to be made regarding ontology. Additionally, Essential Methodological Naturalism is similar to Provisory Methodological Naturalism in that Essential methodological naturalists can, theoretically, argue that the objects which supernaturalists claim to exist really do exist. An Essentialist, like the Provisory naturalist, might be able to say that a ghost exists, for example. However, Essential naturalists differ from Provisory naturalists in that the Essentialist would believe that this ghost is not *really* a supernatural object. The Essentialist would hold that existing supernatural objects are not truly supernatural objects but rather misidentified natural objects. This is because, again, the Essentialist holds that whatever science discovers in our world must be natural.[8] Provisory methodological naturalists, as we will see, would hold that those objects really are supernatural.

1.4.4 Provisory Methodological Naturalism

The third form of methodological naturalism, the form which I seek to defend in this thesis, does not require science to be agnostic with regards to ontology. However, it states that

[8] Alternatively, Essential methodological naturalists might argue that supernatural objects can only exist in other spatiotemporally-distinct possible worlds.

while science is committed to ontological naturalism, this commitment is provisory and can be revoked under extraordinary circumstances (for example, the production of definitive proof of the supernatural). This form recognizes that the long history of scientific inquiry points to the adoption of a naturalistic ontology. However, it also acknowledges that ontological naturalism might someday be disproven. In this way, this form of methodological naturalism grants Hume's problem of induction which states that we have no definitive cause to believe that routine or regular events will occur in the future as they have in the past (Hume, 1888, p. 89). Ontological naturalism may be true now, but there is no guarantee that such will be the case in the future.

Because this type of methodological naturalist is open to the possibility of ontological naturalism being disproven or falsified, she needs a method by which such falsification might take place. And, since she is a methodological naturalist, that method is going to be science. Thus, contrary to the Essential methodological naturalist, this methodological naturalist holds that science is not limited to the natural realm. We *can* use science to evaluate supernatural objects. Again, I define this view, which BBB call *Provisory Methodological Naturalism*, as follows:

> *Provisory Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) and that science can *provisionally* evaluate supernatural objects.[9]

I will examine Provisory Methodological Naturalism in Chapter Three after discussing its strongest challenger, Essential naturalism, in the next chapter. For now, it will suffice to say that all methodological naturalists who consider the role of science in evaluating the supernatural fall into one of two camps; either they accept that science can, theoretically, observe supernatural objects (Provisory methodological naturalists) or they believe that scientifically observing truly supernatural objects is impossible (Intrinsic and Essential methodological naturalists). We might also say that Intrinsic and Essential methodological naturalists hold that, necessarily, all supernatural objects must be unobservable. In other words, these objects must be outside the evaluative range of science and cannot affect the

[9] BBB's own definition of Provisory Methodological Naturalism differs somewhat from mine in that they only hold it to be a provisional acceptance of *methodological* naturalism rather than of methodological *and* ontological naturalism. I will discuss Provisory Methodological Naturalism's provisional acceptance of methodological naturalism in more detail in Section 3.3.

observable natural world. Provisory naturalists, meanwhile, can only go as far as to say that it is possible that all supernatural objects are unobservable.[10]

Previously, I posed a couple of questions regarding trait (2) and the idea that science is limited to the natural realm. The first question asked if (2) was true: "Is science limited to the natural realm?" The second question asked whether methodological supernaturalism would be proven false should (2) prove false: "If science is not limited to the natural realm, is methodological naturalism false?" Provisory Methodological Naturalism assumes that (2) is false. Provisory naturalists assume that science is not limited to the natural realm. Therefore, in defending Provisory naturalism, I am asserting that the answer to the first question is "No." (2) is not true. Regarding the second question, Provisory Methodological Naturalism is, obviously, a form of methodological naturalism. If Provisory naturalism is shown to be true, then clearly methodological naturalism would not be proven false. So, it is not the case that methodological naturalism would be proven false if (2) is proven false.

In addition to these two questions, there is a third, larger question related to our various definitions of 'methodological naturalism'. If science can indeed pronounce on ontology (if Essential or Provisory Methodological Naturalism but not Intrinsic Methodological Naturalism are correct), then which ontology do the findings of science suggest? Does science suggest ontological naturalism or ontological supernaturalism? I will conclude this section by briefly touching on this question which will, admittedly, go largely unaddressed in this thesis. I will not be devoting much space here to defending a particular ontology using the findings of science. This is because the evaluation of arguments for and against the existence of scientific proof of the supernatural is largely fruitless.

Naturalists and supernaturalists have long debated the consequences and credibility of scientific and pseudoscientific findings regarding the supernatural. However, little progress has been made towards universal acceptance of either ontological naturalism or supernaturalism. The non-ubiquity of naturalism may be at least partly due to the belief that science should never rule out the possibility of the existence of supernatural objects. Such a task is not only unwise, it is impossible. One can never prove with certainty that entities

[10] The Provisory view seems to allow for the possibility of unobservable supernatural objects existing in the natural world while not affecting it. Thus, it allows for a conciliatory view which argues that science might observe some of the supernatural objects in the natural world but not all of them. However, this may be controversial. Some might insist that, per methodological naturalism, there are no objects in the natural world which science cannot observe. I will return to this idea in Section 2.5.1.

such as ghosts do not exist. As such, naturalism can be strongly suggested by science but never concluded.

This gives some room for supernaturalism to assert itself. Some individuals may assume supernaturalism to be true in the absence of evidence otherwise. And this may be the case even if evidence of the *non-existence* of the supernatural is impossible to produce. Also, as alluded to in in the Introduction, some supernaturalists are not concerned about whether *scientific* proof exists for their beliefs. What science says about the supernatural is irrelevant for these believers.

Additionally, while we noted that methodological naturalists who espouse ontological supernaturalism do exist, they are a decided minority. Ontological naturalism is by far the more popular position among methodological naturalists (although this, obviously, says nothing about the validity of the view). To the dismay of those involved in the field, parapsychology is considered a fringe discipline by mainstream science and is rarely taken seriously. Science, to most methodological naturalists, suggests ontological naturalism. And, to the extent that I must support my defense of ontological naturalism here, I would register my agreement with this conclusion.

1.5 Conclusion

In this opening chapter, I set out to introduce the concepts of naturalistic and supernaturalistic ontologies and methodologies and to analyze the relationships between them. This was done to discover the three viable methodology/ontology combinations or, in other words, the three ways in which our sets of believed-in objects might be combined with our methods for determining those sets. One consequence of determining these three combinations is the discovery that, although a supernatural methodology requires a supernatural ontology, it is not the case that a naturalistic methodology requires a naturalistic ontology. One might believe that science is the best and only tool for discovering the properties of reality and what exists while still believing in supernatural objects. Following this discussion of methodology/ontology combinations, I then focused on naturalistic methodology more intently. This involved defining and discussing three varieties of methodological naturalism. Intrinsic and Essential Methodological Naturalism prohibit scientific evaluation of supernatural objects while Provisory Methodological Naturalism places no such restrictions on science. Because of the problems surrounding agnosticism

with regards to ontology and because Intrinsic Methodological Naturalism requires such agnosticism, I will put aside the Intrinsic version of methodological naturalism and will focus only on the latter two varieties: Essential and Provisory Methodological Naturalism.

The next two chapters will be devoted to critically evaluating these two forms of methodological naturalism. Chapter Two will focus on the Essentialist approach and Chapter Three the Provisory view.[11] I will examine many of the proposed strengths and weaknesses of each. While Essential Methodological Naturalism has many supporters among methodological naturalists, I ultimately conclude that this form is problematic and that Provisory Methodological Naturalism is the correct version of methodological naturalism to adopt.

[11] I will at various times use "the Essentialist view" or "Essentialism" to refer to Essential Methodological Naturalism and "essentialist" to refer to the naturalist who subscribes to it. Likewise, "the Provisory view" refers to Provisory Methodological Naturalism.

2. Essential Methodological Naturalism

2.1 Introduction

In the previous chapter, I sought to define three approaches to methodological naturalism: Intrinsic Methodological Naturalism, Essential Methodological Naturalism, and Provisory Methodological Naturalism. The first two forms, Intrinsic and Essential Methodological Naturalism are very similar. They both hold that science is restricted to evaluating only the natural realm. In this way, they are opposed to Provisory Methodological Naturalism which holds that science is not so restricted. Essential Methodological Naturalism only differs from the Intrinsic form in one way: It does not restrict science from pronouncing on ontology. Essential Methodological Naturalism very clearly holds that only natural objects exist in our world. Furthermore, Essentialism holds that only natural objects *will ever* exist in our world. Because this change opens up some interesting arguments, I have chosen to set aside Intrinsic naturalism and am focusing solely on the Essential form as the strongest challenge to my preferred Provisory method. Regarding Essential and Provisory Methodological Naturalism, I also noted that the two approaches are exhaustive with regards to the forms methodological naturalism can take when faced with evaluating the supernatural (1.4.4). In other words, the methodological naturalist considering supernatural objects must subscribe *either* to the Essentialist view that science cannot evaluate any supernatural objects or to the Provisory view that it is possible that science can evaluate at least some supernatural objects.

Additionally, we can say that the two views are mutually exclusive; they cannot both be true. If Essential Methodological Naturalism is true, then science cannot evaluate supernatural objects at all. This means that Provisory Methodological Naturalism must be false. If the Provisory view is true, then Essential Methodological Naturalism must be false. For these reasons, as methodological naturalists we can make the following two assumptions: First, if one approach fails, then the other must be correct. Second, one of these views must be true. Thus, if Essential Methodological Naturalism is unjustifiable (as I will ultimately argue it is), then the methodological naturalist must adopt Provisory Methodological Naturalism. In this chapter, I will focus on arguments in support of Essential Methodological Naturalism. I will present five arguments which proponents of the Essential Methodological Naturalism might use to support their view before showing why each of these arguments ultimately fails. The implication is not simply that Essential

Methodological Naturalism is unjustifiable but also that, given the above, the alternative view must be correct.

The structure of this chapter is as follows: In Section 2.2 I will introduce the five arguments in support of Essential Methodological Naturalism. I call these arguments a) the *Argument from Functionality*, b) the *Argument from Established Models,* c) the *Argument from Hindrance*, d) the *Argument from Cooperation* and e) the *Argument from Automatic Naturalization*. In Section 2.3, I will offer responses to arguments (a-c), illustrating why they are unsuccessful in supporting the Essentialist view. In Section 2.4, I will address d) the Argument from Cooperation. I will also briefly explore a flawed argument *against* Essential Methodological Naturalism. This argument holds that the Essentialist position is incoherent because it lends credence to supernaturalism. Finally, in Section 2.5, I will respond to e) the Argument from Automatic Naturalization.

2.2 Five Arguments in Support of Essential Methodological Naturalism

a) The Argument from Functionality: Despite the apparent limitations it places on science, Essential Methodological Naturalism is a common view among scientists and other methodological naturalists.[1] BBB list a few reasons why this might be the case. One reason people might hold that science cannot evaluate supernatural objects is that, were things which violate laws of nature (miracles, for example) to be allowed as possibilities in our world, science could not adequately function (Boudry et al., 2010, p. 234–35). I take the procedure of "evaluation" in my definition of Essential Methodological Naturalism to involve the admission of possibility. So, if one conducts a scientific evaluation or investigation of the supernatural, one is, on some level, admitting the possibility of supernatural objects. But such an admission, some might argue, prevents the method of science from functioning adequately. Thus, the first argument in support of Essential Methodological Naturalism, the Argument from Functionality, holds the following: Science relies on the fact that the universe operates in accordance with certain laws. If we allow even for the possibility of a violation of those laws, then science will break down. Therefore, we

[1] For example, see (Mahner and Bunge, 1996a). Also, in a statement included in a publication entitled *Three Statements in Support of Teaching Evolution from Science and Science Education Organizations* the National Science Teachers Association asserted the following: "Because science is limited to explaining the natural world by means of natural processes, it cannot use supernatural causation in its explanations. Similarly, science is precluded from making statements about supernatural forces because these are outside its provenance" (National Academy of Sciences, 1998). This statement typifies Essential Methodological Naturalism.

must assume that science and the supernatural are closed off from one another, i.e., that Essential Methodological Naturalism is true.

b) The Argument from Established Models: This argument is similar to the previous one in that it too suggests that supernatural explanations are incompatible with science. However, the incompatibility is between supernatural explanations and scientific models of explanation. In 1948, Carl Hempel and Paul Oppenheim suggested that scientific explanations have a distinct form (Hempel and Oppenheim, 1948). All scientific explanations consist of a set of premises leading to a conclusion. At least one of the premises must state the initial conditions or, the appropriate set of physical circumstances. Another premise must state a natural law. A scientific explanation of datum is then attained by deduction from these two types of premises (Parsons, 2014, p. 139). In this way, scientific explanations differ from other types of explanations and more closely resemble arguments. Hempel and Oppenheim called this model of scientific explanation the *Deductive-Nomological* (DN) model. Below is a simple example from Keith Parsons:

> Natural law: When water freezes, it expands with enormous force.
> Initial Conditions: The water in the pipes froze solid overnight.
> Conclusion: The pipes burst (Parsons, 2014, p. 139).

Later, other models were introduced to cover perceived deficiencies in the DN model. The *Inductive Nomological* (IN) model, for example, suggests that we might infer the probable occurrence of the conclusion from the preceding premises. The *Causal Statistical* (CS) model holds that, by isolating the causal processes that bring about an event along with the physical factors statistically relevant to it, we can then understand said event (Parsons, 2014, p. 139). In addition to these, other models of scientific explanation, such as the *Unificationist* and *Pragmatic* models, were also developed.

The problem with supernatural explanations is that they do not seem to fit into any of these established models of scientific explanation. For example, we cannot point to any laws governing supernatural things in the way that natural laws govern natural things. Because of this, we must rule out the DN and IN models as scientific models for supernatural explanations. But nor can we isolate the causal processes of supernatural objects or phenomena which are necessary for the CS model. What, for example, is the causal process by which ESP operates? The answer is unclear. Other models seem to have similar problems. The Argument from Established Models, therefore, holds the following: Because

supernatural explanations do not fit into any of the established models of scientific explanation, a supernatural explanation could never be a scientific one. Therefore, we must assume that science and the supernatural are closed off from one another, i.e., that Essential Methodological Naturalism is true.

c) The Argument from Hindrance: It might be argued that should we allow for "easy" supernatural explanations in science, the search for natural explanations of the phenomena would be hindered. Rather than putting in the effort required to discover the correct natural cause, scientists might take the simpler route to answers (Boudry et al., 2010, p. 236–37). A scientist might conclude, for example, that God is the cause of some unexplainable event and end her research there. As a result, the correct natural explanation would never be discovered. Thus, the Argument from Hindrance holds that allowing science and the supernatural to interact would increase the likelihood of reliance on easily-generated but invalid supernatural explanations over difficult-to-discover but valid natural ones. Therefore, we must assume that science and the supernatural are closed off from one another, i.e., that Essential Methodological Naturalism is true.

d) The Argument from Cooperation: This argument states, in part, that Essential Methodological Naturalism is a step toward fostering cooperation between two opposing views. Because it argues that science cannot evaluate supernatural objects, Essential Methodological Naturalism sets the stage for naturalists and supernaturalists to agree that both of their domains lie outside the critical reach of each other.[2] Science acknowledges it is unequipped to evaluate the supernatural and supernaturalists, in turn, agree not to meddle with science.[3] The result is that both parties are happy: Science is shielded from supernaturalist criticism and supernaturalists are shielded from scientific intrusion. The Argument from Cooperation's "agree to disagree" approach might be used by the ontological naturalist as a response to supernaturalist attempts to encroach on or misuse science (e.g. "I will refrain from disputing the mechanism behind creation, but you must refrain from insisting that valid science supports creationist theory").

However, because it avoids dismissing the supernatural outright, some might feel that the Argument from Cooperation suggests a more agnostic position with regards to

[2] A similar division is seen in Stephen Jay Gould's "non-overlapping magisteria" (Gould, 2002).
[3] The division between natural and supernatural may involve the separation of science and religion, such as in the case of mainstream science and creationism. Or it may involve the separation of science and pseudoscience. We see this in the case of something like Intelligent Design, which is not a science but masquerades as one.

ontological supernaturalism. Or, that it at least suggests a position that sees benefits in supernaturalism without necessarily subscribing to it. Thus, naturalists who feel that science is antithetical to the supernatural will likely not see any value in this argument. Additionally, the methodological naturalist who uses the Argument from Cooperation must believe that science being shielded from criticism in this way is worth limiting the domain of science. Preventing supernaturalist misuse or criticism of science must be worth restricting science to the natural realm. If the compromise is not worth it, then the argument fails. Therefore, we can say that the Argument from Cooperation, in its entirety, holds that Essential Methodological Naturalism fosters cooperation between the opposing views of naturalism and supernaturalism and that the resulting agreement is worth the limitations placed on each.

e) The Argument from Automatic Naturalization: The final argument presented in this chapter for Essential Methodological Naturalism is slightly more complex than the first three. The Argument from Automatic Naturalization shows how, under the assumptions made by Essential Methodological Naturalism (traits 1 and 2), ontological naturalism can never be disproven in our natural world. Since science is the best and only tool for discovering reality and since science can only discover natural things, then it seems that no non-natural things can ever be discovered. This apparent unfalsifiability of ontological naturalism is the first, preliminary conclusion of the Argument. From that preliminary conclusion, the Argument then makes a secondary conclusion that Essential Methodological Naturalism is better for the methodological naturalist to adopt than the alternative form of methodological naturalism. Both conclusions will have their detractors but the latter conclusion is especially controversial. For example, methodological naturalists who are ontological supernaturalists (e.g., the previously-mentioned atheist parapsychologist) will surely not be swayed to the Essential view by a promise of the unfalsifiability of ontological naturalism. However, for the purposes of this argument, we will assume that many or most methodological naturalists do see the value in ontological naturalism or already identify as ontological naturalists.

The notion of the unfalsifiability of ontological naturalism is one of the core principles of Essential Methodological Naturalism. It is how the Essential view differs from the previously-discussed Intrinsic Methodological Naturalism. And because Essential Methodological Naturalism does not prevent science from making pronouncements on ontology, the Essential methodological naturalist who uses the Argument from Automatic Naturalization can attempt to defend an unfalsifiable ontological naturalism based on

scientific findings. The ability to hold ontological naturalism to be unfalsifiable obviously serves as a great advantage to the methodological naturalist who also happens to be an ontological naturalist. If ontological naturalism is unfalsifiable, no discovery of any object (natural or "supernatural") could ever disprove their worldview. Thus, one assumed conclusion from the Argument from Automatic Naturalization for Essential Methodological Naturalism is that Essential Methodological Naturalism can provide an adequate response to any scenario in which irrefutable proof is discovered of an object or phenomenon that appears to be supernatural. As we shall see in the next chapter, if a Provisory methodological naturalist who is also an ontological naturalist is faced with a situation in which the supernatural is proven to exist, she seemingly must re-evaluate or relinquish her ontological naturalism. If God, for example, is proven to exist, it is impossible for the Provisory methodological naturalist to hold that only natural things exist. However, it might be argued that this would not be the case for the Essential methodological naturalist who is also an ontological naturalist. This is because of the above assumption that anything and everything verified by natural science must itself be natural (i.e., ontological naturalism is unfalsifiable). And this assumption, they claim, is valid given their argument that science is limited, by its very definition, in only being able to tell us about the natural world. If science is limited to only being able to tell us about the natural world, then everything we filter through the scientific method must be natural. And, since verification is part of the scientific process, everything we verify must, therefore, be natural. Thus, if science verifies ghosts, then ghosts must be natural phenomena. If science proves the existence of *psi* as the mechanism behind extra-sensory perception, as many parapsychologists claim, then psi itself must be natural. And if God were observed and irrefutably proven to exist, then God would be natural. In other words, supernatural phenomena or objects would instantly and automatically lose their supernatural status and become "naturalized" upon scientific discovery in our world, the natural world. Therefore, the Essential methodological naturalist, unlike the Provisory methodological naturalist, would not be forced to re-evaluate or relinquish her ontological naturalism should the "supernatural" be discovered.

Since ontological naturalists already believe that the world contains only natural things, the motivation for them to subscribe to this form of methodological naturalism may be strong. According to Essential Methodological Naturalism, anyone who agrees that supernatural experiences or objects involve objectively observable and verifiable elements

as opposed to purely subjective ones must also agree that these experiences and objects are not supernatural at all. Take the following quote from Barbara Forrest:

> To become more than a logical possibility, supernaturalism must be confirmed with unequivocal empirical evidence, and such confirmation would only demonstrate that this newly verified aspect of reality had all along never been supernatural at all, but rather a natural phenomenon which just awaited an appropriate scientific test (Forrest and Council for Secular Humanism, 2000, p. 25 cited in Boudry et al., 2010, p.231).

Forrest's statement is a good example of how the Argument from Automatic Naturalization may be used to motivate Essential Methodological Naturalism. She asserts that the confirmation of the existence of supernatural objects must be done using empirical evidence, a process I previously referred to as "verification".[4] However, according to the Essential methodological naturalist, confirming the evidence of the existence of a supernatural object only proves that the object is natural rather than supernatural. Thus, all confirmed supernatural objects are natural and the Essential methodological naturalist can respond to any real or hypothetical scenario in which the supernatural is irrefutably proven to exist without needing to abandon her ontological naturalism. The ability to respond in this way is an advantage that Essential Methodological Naturalism holds over the rival view.

2.3 Responses to the Arguments from Functionality, Established Models, and Hindrance

BBB are opposed to the Intrinsic form of methodological naturalism and have offered a few arguments against that view. Given the similarities between Intrinsic and Essential Methodological Naturalism, many of their responses to Intrinsic Methodological Naturalism can also be used as responses to Essential Methodological Naturalism. For example, BBB offer some objections to the first two arguments discussed above (Boudry et al., 2010, p. 234–35). Regarding the Argument from Functionality, the argument that science cannot function in the face of supernatural possibility, they make two claims. The first is a general claim (similar to Hume's claim, noted above) that we cannot say that supernatural objects

[4] I hold the term "evidence" to have the meaning ascribed to it by Forrest et al. Roughly, evidence is empirical data which is used to determine the validity of beliefs, hypotheses and propositions. I hold a claim to be "evaluable" or "testable" if there can be, following Martin Mahler and Mario Bunge, "evidence of whatever kind for or against a claim" (Mahner and Bunge, 1996b, p. 11, cited in Fishman, 2007, p. 816).

or phenomena are *a priori* impossible. We can never prove with certainty that only natural things exist. In evaluating the possibility of the supernatural, we can make probability claims based, in part, on experience but these can never jump to absolute certainty. This first response leads directly into their second argument which is that we have no reason to believe *all* of science will collapse should one of these supernatural phenomena be proven valid. Certain convictions scientists hold may need to be abandoned and entire scientific fields may even need to be restructured were this to be the case. However, this does not mean that science would be destroyed. We would be even more confident in this conclusion if the supernatural phenomenon were innately restricted in such a way that it did not affect experimentation and the scientific process in other areas. For example, if extra-sensory perception was shown to be real but the mechanism behind it was limited so that it would not affect the acquisition of knowledge from scientific experimentation in, say geology. If this were the case, there is no reason to think that the entire scientific enterprise would collapse.

These responses to the Argument from Functionality have their merits. The first Humean point, that we can never disprove the possibility of the supernatural, is the basis for the alternative form of methodological naturalism that I will later endorse. The second point, that science is resilient enough to withstand the existence of the supernatural, is also well made. Even if the discovery of, say, extrasensory perception would have ramifications, in some perhaps non-obvious way, on *every* area of science (chemistry, astronomy, the social sciences including anthropology and archeology, etc.), this does not mean that all of science would collapse. If the point of the scientific process is the acquisition of knowledge, then the scientific enterprise might still be said to function so long as it provides new information. And nothing suggests that we could not still glean information using the scientific method after the discovery of, say, ESP. Additionally, even if violations of natural laws were to occur as the direct result of the actions of an agent who stands outside those laws, it seems that nothing would prevent us from scientifically studying the motivations of said actions or working to understand the behavior of the agent.

While we can respond to the Argument from Functionality by suggesting that science is not as *fragile* as some might think, we can respond to the Argument from Established Models by suggesting that science may not be as *limited* as some might think. Recall that the Argument from Established Models held that science cannot evaluate the supernatural because none of the established scientific models are compatible with

supernatural explanations. Because supernatural explanations are incompatible with these models, Essentialism must be true. It is the case that the standard models do not lend themselves to supernatural explanations. We cannot explain God or God's actions using DN model, for example. However, we cannot assume that the standard models we are familiar with today are exhaustive. It is possible that we will someday discover an alternative model of scientific explanation which *does* cover the supernatural. And given that such a possibility exists, we cannot say, unequivocally, that science and the supernatural *must* be closed off from each other.

Finally, we return to the Argument from Hindrance which held that supernatural explanations hinder or interfere with the scientific method by providing easy answers to tough scientific questions. BBB argue that even though resorting to God as an explanation for an unexplained phenomenon may be the easiest route intellectually to an answer (i.e., requires the least amount of effort), this alone does not make that explanation incorrect. It may be that God is both the easiest explanation *and* the correct one (Boudry et al., 2010, p. 236–37). I am, again, inclined to agree with them on this point. However, I think we can go further and question the likelihood of a situation in which a scientist, even an ontological supernaturalist scientist, gives up the search for naturalistic answers to the tough questions by appealing to easy supernatural answers. As Gillian Barker and Phillip Kitcher note, it is always possible that the ontological supernaturalist scientist herself holds that the assumption of supernatural explanations for mysterious events is a dangerous or unjustifiable move (Barker and Kitcher, 2013, p. 69).

Additionally, while it is true that fully adopting a supernatural explanation for a phenomenon would prevent adopting a scientific one, this does not mean that fully adopting a supernatural explanation would prevent further scientific inquiry. The adoption of a supernatural explanation may only be temporary; something to be ratified upon discovery of further evidence but not something which prevents further investigation. With this in mind, we can conclude the following: The most an Essential methodological naturalist can claim is that a supernatural explanation *might* prevent further inquiry. She cannot state with certainty that it will.

2.4 Responses to the Argument from Cooperation

Recall that the Argument from Cooperation holds that Essential Methodological Naturalism ostensibly allows for agreement between naturalists and supernaturalists over the domain of science. Both parties can agree that science cannot evaluate supernatural objects. Besides showing an admirable willingness to engage their opponents' view, Essential methodological naturalists might argue that their approach also implies that the courtesy extends both ways; supernaturalists must, in turn, refrain from evaluating science. Essential methodological naturalists might see this as beneficial cooperation with supernaturalists and an advantage of adopting the Essentialist view. According to this Argument from Cooperation, the self-imposed limitation by Essential methodological naturalists on science, the restriction of science to the natural realm, is worth the resulting compromise. I will now provide a few responses to this argument. My first two responses, while perhaps initially credible, suffer problems. The third is, I believe, somewhat stronger. All three of the responses address the core assertion of the argument, that the limitation of science is worthwhile.

The first response to the Argument from Cooperation is that there is no justifiable reason to limit the scope of science and that, by doing so, Essential Methodological Naturalism is contradictory. In the next chapter, I will argue for the validity of the opposing form of methodological naturalism which assumes the possibility of the supernatural. As a Provisory methodological naturalist who accepts the possibility of the supernatural in the actual world, I argue that limiting science to the natural realm constitutes a real, if currently only theoretical, restriction to scientific inquiry. Given the assumption that the supernatural could possibly exist, it would be bad if science was prevented from studying existing supernatural objects or phenomena. There is no justifiable reason why it should be restricted from doing so. There is, in other words, no reason why science should be able to study nature but not supernature. Or why it should be allowed to examine animals, for example, but not ghosts. And given this acceptance of the possibility of the supernatural, we might then say that the assumptions made by Essential Methodological Naturalism are contradictory. It is not possible that a methodology can be (1) the "best and only" tool for discovering the properties of reality when it is simultaneously limited by (2), an inability to evaluate a theoretical aspect of said reality, namely the non-natural. A methodology cannot really be the *best* tool for discovering reality when it foregoes any evaluation of certain, albeit theoretical, elements of reality. The second assumption (2) undermines the first.

But there are problems with this line of reasoning. This first response has it that the Essential methodological naturalist's science would refuse to evaluate any existing supernatural object. It would examine animals but refrain from examining ghosts. However, strictly speaking, the Essentialist does not really limit science at all in terms of the possible objects it can observe and evaluate. Recall the previous discussion regarding the Argument from Automatic Naturalization (2.2). Essential methodological naturalists would be happy to accept the observation by scientists of objects or phenomena classified as "supernatural". Should such objects be discovered by science, Essentialists would surely assert that they exist. Essentialists are simply opposed to the idea that such objects would be classified as supernatural post-discovery. Here we are distinguishing between an existence claim ('God exists') and a classification claim ('God is supernatural'). If God, for example, were discovered to exist, that entity would no longer be classified as supernatural, according to the Essentialist. Instead, God would then be thought of as natural. The Essential methodological naturalist is never going to say that science cannot discover God. She will just say that science cannot discover a supernatural God. So, it is incorrect to assert that the Essential methodological naturalist's science would be unable to evaluate the phenomenon itself.

The second response we might give against the Argument from Cooperation is that limiting the scope of science may inadvertently lend credence to ontological supernaturalism. It may be that the very act of science restricting itself to the natural world suggests a domain of reality beyond science's purview. In other words, by limiting science in this way, Essential Methodological Naturalism lends credence to the existence of a reality beyond the restrictions. The terms 'limited' or 'restricted' can be used in many ways. One way they are used is to refer to a complete finite quantity on its own with nothing outside its boundaries. However, these terms can also be used to refer to a complete finite quantity confined within its boundaries, beyond which other things exist. In our case, we can assume the latter connotation and hold that science ends where another domain begins. Beyond the limited realm of science lies the domain of the supernatural. Essential Methodological Naturalism, therefore, seems to confirm what ontological supernaturalists already believe: science can tell us much about the natural world, but it is unable to tell us about everything that exists.

Consider the following statement from BBB (In the original text, they discuss this issue in relation to Intrinsic Methodological Naturalism. However, the same might be said for the alternative Essential view):

> In the writings of theists, a defense of Intrinsic Methodological Naturalism is typically accompanied by the suggestion that there is more between heaven and earth than is dreamt of in naturalist philosophy. This claim is not shared by atheistic defenders of Intrinsic Methodological Naturalism, but one has to admit that it is a natural extension of it. In their polite reluctance to offend religious sensibilities, atheist defenders of Intrinsic Methodological Naturalism have bought into a philosophical view that inadvertently suggests that religion is a more powerful source of knowledge than science. After all, from the claim that science is ‘‘restricted’’ to the natural domain, it is but a small step to the conclusion that only religion can offer us deep knowledge about the world (Boudry et al., 2012, p. 1158).

So, ontological supernaturalists can take advantage of the limitation (the "polite reluctance") imposed by Intrinsic and Essential Methodological Naturalism to suggest a reality ("more between heaven and earth") beyond the domain of science. And so, it appears that Essential Methodological Naturalism lends a certain credence to ontological supernaturalism. If the reasoning in this response is valid, it would mean that ontological naturalists seemingly cannot be Essential methodological naturalists. Essential methodological naturalism would suggest ontological *supernaturalism*, not naturalism. It would also mean that these confused Essentialist ontological naturalists cannot claim that the self-imposed limitation of science through Essential Methodological Naturalism is worthwhile as the Argument from Cooperation would have it. A limitation which leads to a consequence this dire for the Essentialist sympathetic to ontological naturalism could never be worthwhile.

But adoption of Essential Methodological Naturalism could never lead to ontological supernaturalism. Along with the previously-noted acceptance of unfalsifiable ontological naturalism, it is logically necessary that Essential methodological naturalists be ontological naturalists. Therefore, this second response to the Argument from Cooperation fails. To see the logical necessity, we must first list the two assumptions of Essential Methodological Naturalism:

(1) Science is the best and only method for discovering the properties of reality and what exists (Trait 1).

(2) Science is not equipped to evaluate supernatural objects. (Trait 2).

These are the beliefs every Essential naturalist must hold. We can now try to pair these beliefs with a supernatural ontology:

(3) Supernatural things exist.

The problem is that it is unclear, given (1) and (2), how an Essential methodological naturalist could ever come to hold (3). While Essential Methodological Naturalism does not place restrictions on the type or number of objects science can discover, it does prevent discovered objects from being classified as supernatural. Therefore, if the Essential methodological naturalist were to say that science proves the existence of truly supernatural things, this would contradict (2). But if she says that some method other than science assures her of the existence of supernatural things then this would contradict (1). Thus, the Essential methodological naturalist could never have justification for holding the belief that truly supernatural objects exist.[5] However, if we replace (3) with ontological naturalism, according to which only natural things exist, then there are no such contradictions with these two assumptions. The notion that only natural things exist can theoretically be justified by the method of science. Such justification does not contradict the assertion that science is the best and only method for discovering reality or the assertion that science is not equipped to evaluate supernatural objects. So, Essential Methodological Naturalism itself is logically incompatible with the belief that ontological supernaturalism is true. Essential Methodological Naturalism, in other words, requires ontological naturalism. And thus, any argument which suggests that Essential Methodological Naturalism supports ontological supernaturalism fails.

To be fair, BBB never explicitly state that Intrinsic or Essential Methodological Naturalism requires ontological supernaturalism. They only suggest, as this second response does, that restricting science to the natural realm (Trait 2) lends ontological supernaturalism credence. And, again, it should be noted that their original statement pertains to Intrinsic Methodological Naturalism, not Essential Methodological Naturalism. My

[5] Some might suggest that the Essential methodological naturalist might maintain ontological supernaturalism without justification but this seems unsatisfactory. Few theists, for example, would say that they have no reason for believing in God. Most cite either empirical or spiritual reasons or a mixture of both.

counterargument (that, by logical necessity, the Essentialist can never be an ontological supernaturalist) requires a commitment to trait (1) to go through. Essential Methodological Naturalism assumes (1). However, Intrinsic naturalism does not explicitly assume (1). Because of this, it is possible that this second response *does* work against the Intrinsic view. In other words, it may be that Intrinsic Methodological Naturalism *does* lend credence to the existence of the supernatural. At least, my response above offers no evidence to the contrary.

That said, given the incompatibility of Essential Methodological Naturalism with ontological supernaturalism, theists could never endorse or defend Essential Methodological Naturalism and its restriction of science to the natural realm. The theist belief in a supernatural God directly conflicts with the two major assumptions of Essential Methodological Naturalism noted above. A theist could never defend or endorse Essential Methodological Naturalism in its entirety, meaning both (1) and (2). It seems that, at most, she could choose to adopt the "restriction" element, or (2), on its own.[6]

It is because of this incompatibility that this second response, like the first, fails to adequately address the Argument from Cooperation and thus fails to provide a reason to dismiss Essential Methodological Naturalism. However, there is a third (and, I believe, stronger) response which calls into question the feasibility of the Argument from Cooperation. This response focuses on the fact that the dividing line between methodological naturalism and methodological supernaturalism to be agreed upon by the two parties, the line which both naturalists and supernaturalists promise not to cross, is problematically vague. Later I will touch on the problem of demarcation in the philosophy of science. This is the problem of determining a rule or system by which to distinguish science from non-science or pseudoscience. Coming up with a concrete method by which to make this distinction has proven exceedingly difficult. Until a valid demarcation method is determined, any attempt to draw the line between the natural method of science and other supernatural methods will always be imprecise. The Argument from Cooperation is problematic in that it wrongly assumes that a clear distinction between science and non-science can always be made. The Argument holds that non-science can definitively

[6] Evan Fales takes a similar position in (Fales, 2010, pp.1-2). There he makes the salient points that theists should shun the Essential Methodological Naturalist approach (prohibiting the scientific evaluation of the supernatural) because it completely devalues natural theology (theology which depends on reason or experience rather than divine revelation). Also, Essentialism does not allow for any Christian-centered science of the sort advocated by Alvin Plantinga (Plantinga, 1997) and others.

segregate itself from science and vice-versa. But science cannot rightfully be shielded from *all* pseudoscientific criticism or *only* pseudoscientific criticism (as opposed to other scientific criticism) unless a determination can be made as to which criticism is and is not scientific. Because such a determination cannot be made, the Argument from Cooperation fails.

At this point, the Essentialist might demur and argue that Essential Methodological Naturalism remains valid because it fosters cooperation between two self-identified camps (naturalists and supernaturalists). While it may be true that science and pseudoscience cannot be definitively distinguished, there is enough agreement among the participants as to their respective group to at least justify the Argument. The naturalists who identify as naturalists can refrain from commenting on the methodology of the supernaturalists who identify as such and vice-versa. This is a valid point. However, it is important to keep in mind the considerable number of supernaturalists (among them, creationists in the guise of Intelligent Design proponents) who want their supernatural methodology classified as natural science. These participants "muddy the waters" by making the process of distinguishing science from non-science that much more difficult. Most scientists would argue that Intelligent Design advocates do not belong in their camp. The advocates, though, often argue otherwise. With enough such disagreement, differentiation between natural and supernatural methods would become impossible and cooperation would be limited.

Essential methodological naturalists who want to use the Argument from Cooperation will, therefore, need to work to defuse the demarcation problem. One viable way to do this may be the following: Instead of drawing the line solely on an imprecise natural/supernatural distinction, Essential naturalists should draw the line between a natural methodology *which is supported by detailed theories* and supernatural methodologies which are not. Scientists, working with a method that is supported by theories, can then neglect to comment on methods that are not so supported and vice-versa. As an example, let us return methodological naturalist's assertion that what the creationist does is not science but is instead religion. Creation science, according to Essentialists who employ the Argument from Cooperation, should be restricted from being classified as scientific just as geology and evolutionary biology should not rightfully be classified as religions. Under the original Argument, this divide appears to be based solely on creation science's supernatural associations. But, while it is true that creation science is not a science, its lack of scientific standing is the result of the fact that it lacks a detailed and systematic theory concerning its

subject of study (the Creator).[7] It is not a non-science simply because it references the supernatural. The field of creation science could, theoretically, someday become a genuine science. But to qualify it would need to produce a reliable and concrete theory (or theories) which incorporates a Creator. Such a theory should work to provide creation science with a certain amount of independence from other sciences. A scientific creationist methodology should not need to rely on gaps in other sciences such as biology or archeology to prove its own validity. Finally, the theory should suggest experimental approaches (i.e., make predictions) and produce repeatable results. Were it to produce such a theory, then it seems that creation science should be considered a legitimate science.[8] The same holds true for parapsychology.[9] The point here is that any classification of a theory or field as scientific or non-scientific should be based on the above criteria (along with, possibly, some other considerations, such as its falsifiability) and not simply on its association with the supernatural. The Argument from Cooperation fails to take this into account and, thus, fails as an argument against Essential Methodological Naturalism.

2.5 Responses to the Argument from Automatic Naturalization

The Argument from Automatic Naturalization for Essential Methodological Naturalism holds that Essential Methodological Naturalism provides a benefit which alternative forms of Methodological Naturalism do not. The advantage it holds is that Essential methodological naturalists (who, as we noted, must also be ontological naturalists) need not abandon or re-evaluate their ontological naturalism should "supernatural" objects be discovered. Because science discovers only natural objects, if it should discover an object formally deemed supernatural, we can state with confidence that the object is in fact natural. The notion that all observed objects (i.e., objects verified scientifically) must be natural implies that ontological naturalism is unfalsifiable, at least in our world. In this section, I will detail two responses to the Argument from Automatic Naturalization.

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[7] Many people distinguish creationism from Intelligent Design by holding the former to be a theistic view and the latter to be a secular one. Others disagree and argue that Intelligent Design presupposes theism (Edis and Boudry, 2014; Forrest and Gross, 2007). My own view falls in the latter camp. Regardless, the argument here applies equally to both as neither qualify as science.

[8] Admittedly, this gets tricky. Should the supernatural objects or phenomena being studied by the sciences of creationism or parapsychology be proven valid, we would need to avoid automatically classifying them as natural. I will address why this is the case in the next section.

[9] Paul Churchland argues that parapsychology is non-scientific because it lacks any theories about what the nonmaterial mind might consist of or what laws might govern it (Churchland, 1987, p. 312).

Recall that the Argument from Automatic Naturalization offers two conclusions. The first conclusion, touched on above, is that ontological naturalism is unfalsifiable. The second conclusion is that, because Essential Methodological Naturalism allows for unfalsifiable ontological naturalism, it is preferable to the rival form of methodological naturalism. My two responses to this argument will each address one of these conclusions. My first response holds that unfalsifiable ontological naturalism is not possible given the fact that there could be existing but undiscoverable supernatural objects. In other words, undiscoverable supernatural objects are an ontological possibility. So, contrary to the first conclusion above, unfalsifiable ontological naturalism cannot be true. My second response is that unfalsifiability is not an advantageous trait for a theory to hold. Rather, a falsifiable theory is always preferred. So, a form of methodological naturalism which touts the unfalsifiability of a theory cannot be advantageous.

In fairness, some might think this second response is too easy. Obviously, unfalsifiability is not an advantageous trait of a theory, they might argue. While it may be that unfalsifiable theories are not *inherently* problematic, it is still a stretch for anyone to assume that unfalsifiability is a positive trait. Since the Argument from Automatic Naturalization assumes that unfalsifiability is advantageous, that argument is obviously flawed. It is simply not clear that anyone would subscribe to the idea that unfalsifiability is advantageous. And if most believe that unfalsifiability is not an advantageous trait, it would seem that the Argument from Automatic Naturalization is something of a straw man.

Certain Essential methodological naturalists, perhaps including Barbara Forrest (quoted above), may believe that the unfalsifiability of a theory does not count as an advantage. I do not want to assume that all Essentialists would adopt the Argument from Automatic Naturalization as formulated. However, I feel justified in presenting (and responding to) the argument here because we have seen how Essentialist views like Forrest's motivate unfalsifiable ontological naturalism. The second conclusion of the Argument (that unfalsifiable ontological naturalism is an advantage) may indeed be controversial and not shared by all Essential methodological naturalists. But, at the same time, it does not contradict the Essentialist view. Therefore, those Essentialists who do agree with the notion of unfalsifiability being an advantageous trait may use the Argument. Finally, if they *can* use the Argument, then defending falsifiability as a requirement for a good scientific theory (a defense which is not, on its face, self-evident or obviously true) seems an adequate response.

2.5.1 First Response to the Argument from Automatic Naturalization

We may formally present the Argument from Automatic Naturalization in the following way:

> (1) Science is not equipped to evaluate supernatural objects (Trait 2).
>
> (2) Given (1), whatever is shown to exist via scientific methods must be natural (Even if science were to prove the existence of purportedly supernatural objects, those objects would be natural rather than supernatural).
>
> (3) Science is the best and only method for discovering the properties of reality and what exists. (Trait 1)
>
> Therefore,
>
> (4) Given (2) and (3) ontological naturalism (the thesis that only natural things exist) cannot be disproven in our world.
>
> Also,
>
> (5) Given (4), Essential Methodological Naturalism is the best form for the methodological naturalist (especially a methodological naturalist who is also an ontological naturalist) to hold.

The preliminary conclusion (4) of the Argument from Automatic Naturalization is that ontological naturalism cannot be falsified in our world. The limitation of "in our world" here is important. The Essential methodological naturalist should, at the very least, limit their claim by holding that the unfalsifiability of ontological naturalism is only contingently true. It is not necessarily true in all possible worlds. Again, Essential Methodological Naturalism does not hold that truly supernatural objects (as opposed to incorrectly classified natural objects) cannot or do not exist in any possible world. It simply holds that they do not exist in the natural world. This leaves open the possibility of the truly supernatural existing in a world outside the natural world and beyond all possible observance or

detection.[10] Coupled with the formal conclusion of (4) is the assumed conclusion of (5). (5) states that (4) provides Essential methodological naturalists with an advantage over rival methodological naturalists. Again, her ontological naturalism can never be proven wrong.

But even if (3) above is true and science is the best and only method for discovering reality and what exists, science may still be deficient; It may be that science cannot discover *everything* that exists. In other words, there may be existing undiscoverable objects in our world. Such objects would not simply be things which we have evidence for but cannot observe, like quarks. Rather, they would be objects which we cannot observe or even have evidence for. If it is ontologically possible that such unobservable objects exist *in our world*, then we cannot say that ontological naturalism is unfalsifiable in our world given that some or all of these unobservable objects might be non-natural. So, for the above Argument from Automatic Naturalization to work, an additional premise is required. This would be the premise that science is able to discover all objects or, that there are no undiscoverable objects in our world. For ontological naturalism to be unfalsifiably true, it must be the case that such a premise is correct.

Given the assumptions the Essentialist makes, can she reasonably assert this premise? I think she can. The premise that science is exhaustive can reasonably follow from the original methodological naturalism thesis ("Science is the best and only method for discovering reality, etc.") that both the Essential and Provisory naturalist hold. However, the premise only follows from that thesis if we take the thesis to imply that reality is only what science says. If the thesis implies that some elements of reality cannot be known by science, then the premise does not follow. To clarify this last point, we need to pull the methodological naturalism thesis apart somewhat.

The methodological naturalism thesis can be interpreted in two different ways. First, the thesis can be taken to mean that (a) science is the best and only source of knowledge about reality but that some of reality consists of (or may consist of) elements which cannot be known by science. Science is the best and only method, but some parts of reality will nevertheless remain outside of scientific understanding. In this case, being the "best and only method" does not require science to be exhaustive. Alternatively, the methodological naturalism thesis can be taken to mean that (b) reality is *only* what science says. Only

[10] BBB also seem to suggest something along these lines (Boudry et al., 2010, p. 232). However, some disagree. Yonatan Fishman argues that there is no way to confidently classify "inaccessible entities (entities that will forever lack observable consequences)" as supernatural rather than natural (Fishman, 2007, p. 826).

elements described by the sciences exist. In this case, being the "best and only method" does require science to be exhaustive. The reason why the Essentialist feels confident in asserting the premise that science is exhaustive is that this premise does indeed reasonably follow from the thesis if one uses interpretation (b). If reality is only what science says, then science observes everything that exists in our world. There are no unobservable objects.

It is this assumption that leads to the Essentialist's unfalsifiable ontological naturalism. Science observes everything in our world and everything observed is natural. Thus, ontological naturalism is unfalsifiable. The Provisory naturalist, meanwhile, should look to avoid interpretation (b). She does not want to hold that reality is only what science says. Rather, she should take the methodological naturalism thesis to mean (a); Certain elements of reality cannot be known by or, reduced to scientific theory. Doing this allows the Provisory naturalist to avoid certain problems such as scientism which I will discuss in Chapter Seven.

So, the Essentialist can reasonably assert the premise that science is exhaustive given the assumptions of methodological naturalism. However, we can still question whether the premise is correct. I would argue that it is far from certain that such a premise is correct. For one thing, an object being undiscoverable simply means that it is impossible to prove its existence (or non-existence)! Undiscoverable objects, by definition, cannot be evaluated through natural means and so we could never say that there are no such objects. Furthermore, we must acknowledge that the things human beings can discover or observe using science may be limited. Science itself is a human-created methodology. And we ourselves have limitations as a result of our evolutionary history. Therefore, science too has limitations. It is reasonable to assume that there may be things that a human-created method like science cannot observe.

In addition to these issues, the Essential naturalist has another problem. In effect, what she is doing here is asserting the non-existence of non-observable objects. But, unfortunately for her, all she can do is assert. She can never *prove* their non-existence. Proving non-existence is, generally, extremely difficult and maybe even impossible. The chances of proving the non-existence of a thing are lower than the chances of proving the existence of a thing, even when that thing is extremely unlikely. For example, proving that Santa Claus exists would only require the production of satisfactory evidence of his existence. This is difficult but not, on the face of it, impossible. However, proving that Santa

Claus does not exist *is* seemingly impossible. For the naturalist, the chances of proving the existence of things like Santa Claus, ghosts, and God are extremely low. But as low as these chances are, they are still not as low as the chances of disproving these things. What, exactly, would even be satisfactory proof of the non-existence of Santa Claus? One cannot say.

In the case of non-observable objects, the chances of their discovery are nil. As noted above, these types of objects are *by definition* impossible to discover. However, just like the examples given above, proving the non-existence of unobservable objects is also impossible. Like Santa Claus, there can be no satisfactory evidence for the non-existence of unobservable objects. What all of this means is that, even though naturalists often assume it to be the case, we cannot *unequivocally* say that there are no undiscoverable objects in our world. And because the Argument from Automatic Naturalization neglects to take this into account, its preliminary conclusion fails.

Despite all this, the Essential methodological naturalist may still argue that unobservable objects are impossible in our world. Perhaps being observable in the sense that an object directly or indirectly supplies evidence for its existence is simply a necessary condition for being an object. All objects are observable via some means. Their very existence affects their environment in ways that are measurable. So, while it is obviously true that current science is unable to observe evidence for the existence of undiscovered objects, there are strong reasons to reject the idea that said evidence could be unobtainable or that science is incapable of ever discovering certain objects. For one thing, future science will surely be able to make observations which current science is incapable of. What seems to be beyond the scope of science now may be common scientific practice in the future. At least such has proven to be true in the past. Thus, we might conclude that, given enough time, science can indeed discover all objects. But even if human beings fail and future science does not make those observations, leaving some object or objects unobserved, what matters is that science *could have observed* the objects. Even if scientists fail to connect the dots and find the evidence leading to discovery, all objects in our world do supply it, one way or another. Thus, there can be no unobservable objects and the argument for automatic naturalization and Essentialism is supported.

The problem with this response is that being able to supply evidence for existence is not necessarily a requirement for *all* objects. If it is a requirement at all, it is likely only a requirement for *natural* objects. There is no reason to assume that supernatural objects

would be under such constraints. It may be that being unobservable in every sense ensures that an object is not a natural object, but it does not ensure that the object does not exist. If supernatural objects are not required to supply evidence for their existence in this way, then there may be non-observable objects in the natural realm. And if there are such objects, then ontological naturalism is not unfalsifiable in the natural realm and the first conclusion made by the Argument from Automatic Naturalization is false. The Provisory methodological naturalist, therefore, will want to say that there is no *a priori* restriction on science that prevents it from examining truly supernatural objects (i.e., genuine supernatural objects as opposed to incorrectly classified natural objects). No inherent property of the scientific practice prevents it from evaluating the supernatural. At the same time, the Provisory naturalist should remember that some or all supernatural objects, should they exist, might simply be unevaluable by any method, natural or supernatural.

2.5.2 Second Response to the Argument from Automatic Naturalization

The second conclusion made from the Argument from Automatic Naturalization is that because Essential Methodological Naturalism touts unfalsifiable ontological naturalism, it is a better form of methodological naturalism to adopt than its rival. I will now respond to this conclusion by arguing that falsifiability is a requirement for any theory to be scientific. Because Essential Methodological Naturalism assumes ontological naturalism to be unfalsifiable, it fails as a scientific theory. As a result, any argument for it, including the Argument from Automatic Naturalization, also fails. The brand of falsifiability I will endorse is a modified version of Karl Popper's original falsifiability theory (Popper, 2002).

The notion of falsifiability was first introduced by Popper in the 1960s. Since then, it has been considered by many to be a hallmark of any good scientific theory. Popper argued that the method for differentiating between a proper scientific theory and a non-proper one (or, for *demarcating* science from non-science) was to analyze whether the theory in question could theoretically be proven false. If it could, then that theory was acceptable as proper science. If it could not be falsified, then the theory was not proper science and should be discarded. An oft-cited example of an unfalsifiable theory is the practice of astrology. Many people argue that astrology is not a science because its practitioners do not make solid predictions which, should they fail to be realized, would lead to the falsification of the

theory. Popper's criterion here is clear and easy to implement. It relies on the valid assumption that a true science should be willing to stringently test its claims.

We see the importance of falsifiability to a theory when we consider a brand of specious reasoning that pseudoscientists employ in response to the general lack of evidence supporting their own claims. Specifically, these pseudoscientists utilize questionable ad hoc hypotheses to explain experimental failures. One example of this is the "experimenter effect" in which the experimenters' own "psi", or paranormal ability, is said to adversely affect the testing procedure (Blackmore, 1986). Blame for failures is also sometimes laid on the "actively evasive" nature of psi. Such evasiveness allegedly stems from the idea that psi's primary function is to "induce a sense of mystery and wonder" (Kennedy, 2003, p. 67). These blatant attempts to dissociate one's theory from conflicting data are not tolerated under a falsifiability criterion. Under such a criterion, contradictory evidence discovered during experimentation is considered a counter-example to the theory. As a result, the theory itself is discarded. It seems right that one of the requirements for a scientific theory would be that it does not consist of ad hoc supplemental arguments to explain evidential failure. Falsifiability guarantees that this requirement is met.

Some might respond that, while falsifiability is indeed useful in highlighting such questionable reasoning, usefulness alone is not enough to establish falsifiability as a valid demarcation criterion. However, I would argue that the exact opposite is the case. One of the most important reasons we recognize certain theories to be true is because they are useful. A true hypothesis primarily works to help us solve a problem (Such a problem might consist, minimally, of the question of whether the given theory is true or false). Therefore, falsifiability's usefulness as a hypothesis which helps to facilitate demarcation actually *suggests* it to be scientific. Furthermore, if falsification is indeed a requirement for a solid scientific theory, then Essential Methodological Naturalism, like astrology, fails as science. I believe that this is indeed the case. However, there are some considerations.

To begin with, not everyone believes that unfalsifiable naturalism is a mistake. Some philosophers explicitly assume that naturalism is inviolable. For example, Alistair McKinnon, in response to the proposed existence of violation miracles (events which violate the laws of nature), argued that laws of nature are inherently inviolable (McKinnon, 1967). McKinnon believed that if a "law" is verified as broken, then it was never a true law of nature. Or, it may be that the event which appears to break a law of nature is simply an

undiscovered law of nature itself.[11] A man walking on water may be taking advantage of an unknown law of nature which somehow allows a human body to traverse the surface of a body of water without sinking, for example. By McKinnon's reasoning, nothing which occurs in our natural world could ever violate a law of nature. Natural laws govern everything and, thus, naturalism is simply and incontrovertibly true.

However, this view cannot be correct. Unless we can conclusively prove that the supernatural cannot exist in our natural world we cannot exclude the possibility that a violation of laws of nature can occur. And it is likely that few people will admit that the supernatural has been proven to be non-existent in our world. Anyone who states that it has been proven that the various laws of nature have never been violated is misinformed, to say the least. No such proof exists.[12] Therefore, we are never justified in claiming that violation miracles are impossible. Translating this to the naturalism case, we must take it that the only hypotheses which are beyond the scope of science should be hypotheses which are simply untestable. Supernatural hypotheses should not qualify as untestable and, thus, should not be dismissed outright. For this reason, it is wrong to declare naturalism by fiat. And because the Argument from Automatic Naturalization in support of Essential Methodological Naturalism requires acceptance of this declaration, that argument fails.

To be fair, McKinnon's view assumes naturalism to be unfalsifiable but it does not explicitly argue against the doctrine of falsifiability. His view is not a direct attack on Popper's view. Others, however, have raised specific problems with falsifiability itself.[13] And Massimo Pigliucci argues that the real world is not so black and white as to allow for Popper's edict that any theory which fails the falsification test must be abandoned. We can easily imagine counterexamples to various claims which should not cause the original claim to be thrown out (Pigliucci, 2012, p. 3). The theory that "Elephants are grey", for example, should not be discarded if we happen to discover a rare albino pachyderm. A single non-grey exception should not lead to the entire theory being dismissed. This is a salient point and serves to illuminate a flaw in Popper's rather strict defense of falsifiability.

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[11] For an alternative account of laws which allows for exceptions see (Braddon-Mitchell, 2001).

[12] Importantly, the acquisition of proof here must equate to the gaining of knowledge and not to the gaining of mere belief. A naturalist may be justified in her *belief* that the supernatural does not exist, based on the lack of evidence for the supernatural, but she cannot say that she *knows* that the supernatural does not exist or that the supernatural is impossible.

[13] See (Lakatos, 1970; Pigliucci, 2012; Quine, 1951; Thagard, 1978).

Additionally, an element of Popper's argument appears to conflict with assumptions I have already made and will return to in the next chapter. Since this conflict will require me to qualify my endorsement of falsifiability, it should be immediately addressed. However, I will attempt to explain the issue here without getting too far ahead of myself. As noted in Chapter One, the alternative to Essential Methodological Naturalism which I will soon endorse, Provisory Methodological Naturalism, follows Hume in relying on inductive reasoning. At the same time, Provisory naturalism holds the Problem of Induction to be a very real concern. So, we can use inductive reasoning to conclude that ontological naturalism is true given past experience. But we should not simply adopt ontological naturalism in the manner of McKinnon and others. That is, we should not hold that ontological naturalism is inviolable or unfalsifiable. This is in part because we recognize, as Hume did, that there is no guarantee that the future will be like the past. While we are right to assume, based on experience, that supernatural objects do not exist now, we are not justified in assuming they will never exist in the future.

However, Popper thought that his falsification theory *solves* this Problem of Induction. Or, at least he thought his theory made the Problem moot. Popper believed that while some assumptions may be unprovable (e.g., the assumption that only natural things exist), we can still hold a theory which corresponds to that assumption. Should an exception to that theory be proven, then the theory would need to be abandoned. But until that happens, it is not irrational to accept the theory as true. Importantly, this production of a counterexample leading to the abandonment of the assumption is a case of *deductive* rather than inductive reasoning. For Popper, induction was a "myth" which real science does not use (Popper, 2002, p. 53). Thus, in accepting Popper's argument for falsification which dismisses induction, I appear to be contradicting the form of methodological naturalism I want to defend later which relies on it. Like Hume, I want to say that the method of induction is valid but that there is a problem with its use. Popper, on the other hand, holds that induction is always invalid.

Despite this apparent inconsistency, I think mine/Hume's and Popper's views are more compatible than they might at first appear. Or, at least they are compatible regarding their application to methodological naturalism. The two views have wide areas of agreement. For one thing, Hume and Popper both allow for the making of and adherence to *qualified universal generalizations*. A qualified universal generalization is the contingent acceptance of a theory. For example, the naturalist makes the qualified universal

generalization that it is likely that only natural things will be discovered. The ability to make and adhere to such generalizations is important because, if we could not prefer particular generalized universal claims, then we would need to hold that all claims are equally valid. If we cannot favor certain claims over others, then the claim that all non-human animals will start speaking English tomorrow (a possibility under Hume and Popper) would need to be recognized as equal to the claim that they will not. This is a problem that both Hume and Popper recognized. Thus, they both thought that qualified universal generalizations are required and warranted. And, as such, they agree that not all claims are equal. Both Hume and Popper allow that all non-human animals could start talking tomorrow. But they also allow that we can make the qualified universal generalization that (most probably) this will not be the case. The claim that "All non-human animals will start talking tomorrow" is, therefore, not on par with "All non-human animals will not start talking tomorrow".

The conflict between Hume and Popper only arises because the justification for this qualified universal generalization differs. Hume justifies generalizations inductively based on experience while Popper justifies them deductively based on empirical evidence (or, rather, the lack thereof). These two views may themselves conflict but such conflict need not result in problems for the methodological naturalist who adopts the form I endorse and embraces the falsifiability of ontological naturalism. This naturalist can adopt either Hume's or Popper's view. If she chooses to adopt Hume, she reasons inductively but uses the Problem of Induction to *justify* the falsifiability of ontological naturalism ("Because there is a problem with induction, we must assume that ontological naturalism might be falsified"). On the other hand, if she were to follow Popper, then her deductive reasoning requires that she simply *assume* ontological naturalism to be falsifiable ("One counterexample to ontological naturalism can invalidate it"). Both Hume's and Popper's approaches arrive at the same conclusion, that ontological naturalism is falsifiable. And, since that conclusion is valid, both approaches are valid as well (at least in relation to this discussion). To proceed further and argue for one approach over the other would merely be arguing for one form of reasoning (deductive or inductive) over the other. Such an argument does not concern us here but what does concern us are the following two truths: First, the fact that, for the reasons mentioned, Popper's view must be separated from my own (and Hume's). And second, that, despite this distinction, the two views do not necessarily conflict. At least, they do not necessarily conflict when applied to the methodological naturalism case.

But there are other areas of agreement between my own and Popper's view. One such area of agreement concerns the requirements for the falsification of a theory. Both Popper's broad falsification of general theories and my own endorsement of the falsification of ontological naturalism require only a single contrary example. If a single contrary example to ontological naturalism is discovered, then the theory is falsified. Interestingly, outside of ontological naturalism, this does not always seem to be the case. Regarding falsification in other areas, I agree with the above criticism leveled against Popper's view. Specifically, I agree with Pigliucci's assessment that the discovery of one contradictory example to a theory should not result in the entire theory being discarded when it comes to theories involving things like elephants. To think that one contrary piece of evidence is enough to invalidate a given theory is, generally, not a tenable position to hold. However, one of the times it *is* tenable is in relation to the falsification of ontological naturalism. If one proves the existence of even a single supernatural object then ontological naturalism would indeed need to be abandoned. So-called "strict" falsifiability, which requires the abandonment of a theory after a single contrary piece of evidence, should not be assumed generally, as Popper suggests. However, it should be assumed in the case of ontological naturalism and hypothetical supernatural discoveries.[14]

So, there are elements of Popper's view which remain worthwhile (falsification as a means for evaluating a theory). But there are also elements of his view which should not be accepted (downplaying the Problem of Induction, abandonment of theories upon a single piece of contradictory evidence). Therefore, I believe an accommodationist position should be adopted. This position would lie somewhere between the complete rejection of falsification theory and the embracing of Popper's view in its entirety. An accommodationist falsifiability position consists of the following belief: It is possible to recognize the value of falsifiability as a tool for determining whether a theory is worthwhile while simultaneously holding that induction is valid and that the Humean problem remains viable.

Perhaps such an accommodationist view could also see a reconsideration of the ramifications of falsification itself. For example, rather than holding that falsification should lead to the outright rejection of a claim, perhaps falsification could simply mean that a theory

[14] The reason for this likely concerns its being a universal thesis. Ontological naturalism holds that *all* existing things are natural. Thus, a single counter-example disproves the thesis. Similarly, the universal thesis that all existing things are blue, call this *ontological bluism*, would be proven false with the production of one red object.

should be *modified* in light of the new evidence. Rather than rejecting the claim that "Elephants are grey" upon discovery of a white elephant, a modified claim, say, "While elephants are normally grey, some are without pigmentation" may be put forward. Finally, if reevaluating falsification and its consequences in these ways allow us to retain falsifiability as a measuring stick for rejecting certain claims, then we should be able to reject the Essentialist argument based on its unfalsifiability.

2.6 Conclusion

In this chapter, I have attempted to show why various arguments in support of Essential Methodological Naturalism fail. Despite Essentialist assertions to the contrary, the enterprise of science would not collapse if supernatural theories were introduced as explanations. And, while it is true that current scientific models cannot account for the supernatural, we must acknowledge that future models may be able to do so. Additionally, it would not be the case that science would collapse if supernatural explanations were allowed. Nor would scientists necessarily posit supernatural theories in place of naturalistic ones if allowed to do so. Finally, even if supernatural explanations are indeed easy to formulate, we should remember that this does not make them incorrect.

The argument that Essential Methodological Naturalism fosters cooperation between naturalists and supernaturalists while shielding science from supernaturalism also fails. To *definitively* shield science from supernatural meddling, science needs to be able to definitively separate itself from non-science. But no method to conclusively demarcate science from non-science exists. That said, we cannot argue against Essential Methodological Naturalism by asserting that it lends credence to ontological supernaturalism. Pairing Essential Methodological Naturalism with ontological supernaturalism is impossible because the ontological supernaturalist would have no basis for her belief in supernatural things without contradicting her Essential Methodological Naturalism. She cannot say that science leads to her belief in supernatural objects. But nor can she say that a method other than science leads to her belief in such objects. Since these are the only options available to her to explain her beliefs and since both are not permitted given her methodology, her combination of (Essential) methodology and (supernatural) ontology must be incoherent. This is true even though we have previously seen that standard

methodological naturalism can coherently be held in conjunction with ontological supernaturalism (the atheist parapsychologist).

However, we can still hold that any argument which supports Essential Methodological Naturalism by stating that it allows for the supernatural to be automatically naturalized fails. This is because such a view is problematically unfalsifiable. No one is justified in claiming that ontological supernaturalism is impossible. And yet we have seen that this is exactly what the Essential methodological naturalist who stands by the Argument from Automatic Naturalization must believe. Some philosophers have pointed out that religious explanations are often criticized based on their unfalsifiability.[15] It is only fair that unfalsifiable naturalistic explanations are likewise challenged.

Because the strongest arguments for Essential Methodological Naturalism have proven unsuccessful, we can conclude that this form of methodological naturalism should be avoided. Recall in the introduction I noted that the two forms of methodological naturalism on offer, Essential and Provisory, are exhaustive in that they are the only forms available to methodological naturalists. I also noted that they are mutually exclusive. The methodological naturalist must subscribe to one of the two forms and she cannot choose both. If Essential Methodological Naturalism does indeed fail, then its rival, Provisory Methodological Naturalism, must be correct. In the next chapter, I will further elaborate on this Provisory approach, discuss some of its benefits and examine some of the consequences associated with its adoption.

[15] See (Flew and MacIntyre, 1955).

3. Provisory Methodological Naturalism

3.1 Introduction

In this chapter, I will introduce Provisory Methodological Naturalism, the form of methodological naturalism which I hold to be the correct methodological approach. Again, this form has it that methodological naturalism, or the view that science is the best and only tool for discovering reality, is only provisionally true. Should the need arise, methodological (and, therefore, ontological) naturalism should be abandoned. In this chapter, I will discuss the Provisory view itself in more detail before examining its application and some of the benefits associated with adopting it. I will begin by explicitly defining Provisory Methodological Naturalism. Following this, I will present and respond to a potential flaw in the Provisory approach relating to circularity. Finally, I will examine some of the benefits associated with adopting the view. Specifically, I will look at three such benefits: Falsification, Cooperation, and Scientific Work.

3.2 Defining Provisory Methodological Naturalism

In the previous chapter's conclusion, I noted that "standard methodological naturalism" can be held in conjunction with ontological supernaturalism (2.6). It is possible for the "standard" methodological naturalist to be an ontological supernaturalist, as in the case of the atheist parapsychologist. In other words, Combination 3 (methodological naturalism paired with ontological supernaturalism) in Table 1.3 is coherent. I also previously noted that the Essential methodological naturalist, unlike the "standard" methodological naturalist, cannot coherently hold a belief in supernatural objects. The Essential methodological naturalist must be an ontological naturalist (2.4). What accounts for this difference between the "standard" and Essential methodological naturalists is the restriction (or lack thereof) placed on science by the two views. While Essential Methodological Naturalism prohibits science from evaluating truly supernatural objects, the "standard" methodological naturalism which I have thus far assumed implicitly *allows* for the evaluation of such objects. The atheist parapsychologist believes in supernatural things because her scientific method tells her that she has reason to. Her supernatural ontology is confirmed by her naturalistic method. But Essential Methodological Naturalism prohibits this type of evaluation and, thus, prevents any such confirmation. The Essential methodological

naturalist cannot say that science is the basis for a belief in supernatural things because the Essentialist holds that science cannot evaluate the supernatural. But she also cannot say that a method other than science is the basis for such a belief as then she would not be a methodological naturalist.

I concluded that the former approach, the approach that allows for the scientific evaluation of supernatural objects, is the correct approach for methodological naturalists to take. The naturalist should avoid the Essentialist alternative. It may already be obvious that this former approach, what I assumed to be "standard" methodological naturalism is, in fact, Provisory Methodological Naturalism. Recall that I defined Provisory Methodological Naturalism in the following way:

> *Provisory Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) and that science can *provisionally* evaluate supernatural objects.

By not limiting science to evaluations of only natural objects, the method of science can, in principle, prove the existence of supernatural objects and entail a supernaturalistic ontology. According to BBB, Provisory Methodological Naturalism holds that "methodological naturalism is a provisory and empirically grounded commitment to naturalistic causes and explanations, which *in principle* is revocable by extraordinary empirical evidence" (emphasis in text, Boudry et al., 2010, p. 229). The production of such extraordinary evidence would require the Provisory methodological naturalist who is also an ontological naturalist to change her stance and endorse ontological supernaturalism. It is important to note that this does not mean that the Provisory methodological naturalist begins with an assumption of ontological naturalism. Provisory Methodological Naturalism does not require either ontological naturalism or ontological supernaturalism. Nor does it *necessarily* endorse one over the other. The Provisory methodological naturalist may believe in supernatural things or she may hold only natural things to exist. However, the Provisory methodological naturalist who commits to ontological naturalism (likely due, at least in part, to the commitment to "naturalistic causes and explanations") must also hold that her ontological naturalism is revocable.

Thus, the Provisory methodological naturalist who is also an ontological naturalist accepts the following: It is true that Methodological naturalism has a long history of successes and so has proven enormously fruitful. For this reason, we are currently justified

in being methodological naturalists. Additionally, the method of science has thus far supported a naturalistic ontology because science has not, most scientists believe, shown supernatural objects to exist. Thus, we are also currently justified in being ontological naturalists. However, this could all change tomorrow given the right circumstances and evidence. Given conclusive evidence, ontological supernaturalism could be proven true.

In the sections that follow I will present a few of the advantages associated with adopting this Provisory approach. However, before doing so, I will examine a potential problem with the view. This problem concerns circularity.

3.3 A Problem for Provisory Methodological Naturalism: Circularity

Until now, most of my discussion of falsifiability in relation to the Provisory view has concerned the falsifiability of the ontological naturalist's thesis. The Provisory methodological naturalist believes that supernatural objects are discoverable by science, thus rendering ontological naturalism falsifiable. But we should note that, for the Provisory naturalist, the same falsifiability should apply to methodological naturalism as well. The acceptance of methodological naturalism should only be provisory. It is tentative and is subject to change. Methodological naturalism is the thesis that science is the best and only method for discovering reality. But, assuming that supernatural objects are possible, why should science be the only method by which we might observe them? If we were to find that ghosts are real, would it be too far-fetched to assume that there could be a better method than science to interact with or observe them? It would not. Thus, while the Provisory naturalist may believe that science is the best and only method to discover reality, she should remain open to the possibility that alternative, non-natural methods exist.

Ostensibly, we would know if a non-natural method was more effective than science through the natural or scientific observation of that method. We could conclude that a supernatural method is more effective than science by simply comparing the results of the supernatural method with the results of science. If we observe the supernatural method to be more effective, then we know it to be the case. Thus, we use the scientific method to determine if a method other than science is effective. This is the same procedure we would use for ontological naturalism falsification. We would know that ontological naturalism is falsified once we scientifically observed supernatural objects. The Provisory naturalist holds

that the scientific observation of truly supernatural objects is indeed possible.[1] If this were to occur, then ontological naturalism would be falsified.

So, both methodological naturalism and ontological naturalism are falsifiable according to the Provisory naturalist. Moreover, they both may be falsified using the same method of science. But some people take issue with the idea that science can investigate doubts raised about the scientific method itself. According to these individuals, one cannot rationally assert that the scientific method might, by investigating any doubts about science, ever come to disprove naturalism. This is because the method used to investigate those doubts (the scientific method) would be deemed illegitimate by the disproving of naturalism. Michael C. Rea formulates this problem well. He writes,

> As I see it, the problem lies in the fact that (*a*) those who call themselves naturalists are united at least in part by methodological dispositions that preclude allegiance to views that cannot be called into question by further developments in science, but (*b*) no one seems to think that developments in science could force someone to reject naturalism. So those who want to formulate naturalism as a thesis face a dilemma. On the one hand, if they formulate it as a thesis that cannot be overturned by scientific investigation, then naturalism turns out to be precisely the sort of thesis that naturalists are unwilling to accept. In the worst cases, such formulations are either vacuous or self-defeating. On the other hand, if they formulate it as a thesis that could be overturned by scientific investigation, then (obviously enough) naturalism stands at the mercy of science.
>
> One might think it odd that naturalists would resist this second horn of the dilemma. After all, if everything else is at the mercy of science, why not naturalism? But the question is confused. Naturalism is motivated by a high regard for scientific method. It would be completely absurd, therefore, to think that empirical investigation could overthrow naturalism without overthrowing scientific method itself in the process" (Rea, 2004, p. 51-2).

Rea argues that naturalism faces problems in its formulation. We cannot hold that naturalism is unfalsifiable because this goes against the Provisory Methodological

[1] I will discuss how a Provisory naturalist might distinguish the natural from the supernatural in Chapter Five.

Naturalism thesis. Provisory naturalists are wary of unfalsifiability. But we also cannot say that naturalism is falsifiable. The scientific method ("empirical investigation") cannot be used to disprove naturalism because naturalism is based on "a high regard for scientific method". If we were to falsify naturalism, we would also falsify the scientific method itself. And we cannot use a method to disprove the effectiveness of said method!

But I do not think that Provisory naturalists need to worry. In my view, there are at least two problems with Rea's argument. The first problem concerns Rea's questionable pairing of naturalism with the scientific method. Rea wants us to believe that any questioning of the truth of naturalism leads to the questioning of the scientific method itself. His motivation for this connection concerns naturalism's "high regard" for the method itself. But it is not clear that a high regard for the scientific method alone justifies the connection Rea makes between naturalism and the scientific method. Other views might have the same high regard and yet lack the connection. Take physicalism as an example. Physicalism is the philosophical view that, roughly speaking, the only things that exist are those things defined by the science of physics (and, maybe, those things that *supervene* on the things defined by the science of physics). Thus, physicalism too has a high regard for the scientific method. However, in questioning physicalism, we do not necessarily question the scientific method itself. Furthermore, we do not want to say that by overthrowing physicalism we would overthrow the scientific method in the process. Surely that would not be the case.

The ambiguity here might be cleared up if Rea clarified the relationship of naturalism to the scientific method. However, he does not do this. His conception of naturalism seems broad. In the quote above, for example, Rea does not bother to distinguish between ontological and methodological naturalism. He simply refers to the more general term, "naturalism". To be fair, this is probably intentional. Rea makes it clear that he does not appreciate the distinction between naturalisms. For him, distinguishing between methodological and ontological naturalism is pointless.[2] But this is the second problem with his argument. Were he to make such a distinction his dilemma would be solved.

If we distinguish methodological and ontological naturalism, we do not need to equate naturalism with the scientific method as Rea does. This is because neither methodological

[2] Rea writes, "[T]hough it is certainly true that there are various doctrines in the literature all going under the label 'naturalism', we needn't infer from this that there are different versions of naturalism corresponding to the different doctrines. Another possibility is that there is just one version of naturalism but various mischaracterizations of it" (Rea, 2004, p. 53). A similar discussion can be found in (Dawes, 2009, p. 5).

nor ontological naturalism is identical to the scientific method. Furthermore, I already noted above that both methodological and ontological naturalism can be falsified (without contradiction) using the scientific method. Thus, after making the above distinction we can say that the scientific method can prove that the scientific method is not the best and only method for discovering reality. Or, in other words, we can use the scientific method to disprove the *methodological* naturalism thesis. Similarly, we can say that the scientific method proves that supernatural things exist. In other words, we can use the scientific method to disprove the *ontological* naturalism thesis.

We can assume these things without contradiction because we are not saying that the scientific method is disproving itself. We are saying that the scientific method is disproving the methodological and ontological naturalism theses. Alternatively, if we simply equate naturalism with the scientific method as Rea does, then we *would* get a contradiction. Holding that naturalism equates to the scientific method and that the method can disprove naturalism is contradictory. Therefore, the solution to the problem of circularity and naturalism simply involves clarifying the types of naturalism under consideration.

3.4 Benefits of Provisory Methodological Naturalism

As noted in the previous chapter, Essential Methodological Naturalism and Provisory Methodological Naturalism are the only forms methodological naturalism can take regarding the evaluation of the supernatural. The two forms are also mutually exclusive. These facts allow us to conclude that, if one form is proven to fail, then the alternative must be accepted. However, we should note that they also mean that any argument supporting one form also qualifies as an argument against the alternative. Or, we could say that an argument against one form is automatically an argument in support of the other. So, if I proved in that chapter that the best arguments in support of Essential Methodological Naturalism fail to convince, I have also shown that those arguments fail to convincingly fault Provisory Methodological Naturalism.

I will now examine some unique benefits to holding the Provisory view. As far as these advantages can be considered arguments for the Provisory method, they also serve as arguments against the Essentialist one. Indeed, methodological naturalists who argue against the Essentialist view are almost certainly Provisory methodological naturalists. For

these reasons, I will at times refer to problems with Essential Methodological Naturalism in the process of advocating for its rival.

3.4.1 Benefits of Provisory Methodological Naturalism: Falsification and No Hypocrisy

The first and perhaps most obvious benefit of Provisory Methodological Naturalism is the fact that it holds ontological naturalism to be falsifiable. Just as unfalsifiability is a core element of the Essentialist view, falsifiability is a core element of the Provisory view. Ontological naturalism must be revocable if we are to assume a Provisory Methodological Naturalism which takes supernatural objects seriously. I have already argued for falsifiability as at least a partial requirement for a theory to be scientific. Essential Methodological Naturalism, with its embrace of the unfalsifiability of ontological naturalism, fails as a scientific theory. Provisory Methodological Naturalism, on the other hand, does not.

But just as it may have initially seemed that Essential Methodological Naturalism was giving too much up to supernaturalism because of the strict limitation it places on scientific evaluation ("science can evaluate *no* supernatural objects"), Provisory Methodological Naturalism may also seem to be giving something up to the opposing camp. Provisory naturalism readily admits the possibility that it is in error and clearly states the circumstances in which methodological and ontological naturalism would be disproved. For this reason, it might be argued that Provisory methodological naturalists' naturalism is not as strong as the naturalism of the Essentialists. While Essential methodological naturalists have an unfalsifiable naturalism, the Provisory approach is less secure. Maybe Provisory methodological naturalists should be less confident in their methodology and the ontology their method advises. This is an interesting argument. However, I would respond by noting that this admission of the possibility of error should be recognized as an asset of the position rather than a weakness. Provisory Methodological Naturalism mirrors the general scientific method in allowing for correction of the view and therein lies its strength.

Additionally, we might consider the following more pragmatic argument for Provisory Methodological Naturalism (or, against Essential Methodological Naturalism) from hypocrisy: It is hypocritical for the Essential methodological naturalist to declare in an ad hoc manner that all evidence, including evidence presented by supernaturalists in support of ontological supernaturalism, is really natural evidence. This is because earlier the

Essentialist criticized the hypothetical supernatural scientist who simply declares God as the ultimate mechanism behind any unsolved problem (e.g., the Argument from Hindrance). Given that neither declaration is adequately supported, it is unfair to make such a sweeping claim for naturalism while forbidding it for supernaturalism. In other words, Essential methodological naturalists cannot justifiably argue against supernaturalism by fiat while declaring naturalism by fiat in the same manner. To do so, given the problems with both unfalsifiable ontological naturalism and the Argument from Hindrance, is hypocritical. In fact, some might go so far as to say that the Argument from Automatic Naturalization, which asserts that everything observed via science is natural and that ontological naturalism is unfalsifiable, could be reconstructed as an argument *against* Essential Methodological Naturalism rather than for it. The reason is that it simply makes Essential Methodological Naturalism trivially true. And this is, arguably, a problematic result.

3.4.2 Benefits of Provisory Methodological Naturalism: Real Cooperation

Another strength of Provisory Methodological Naturalism is that it opens the doors for supernaturalists and non-naturalists to use the proven method of scientific inquiry to test their claims. This is valuable for a couple of reasons. The first reason is a pragmatic one. A naturalist should want as many people as possible to not only adopt the scientific method but to utilize it correctly. The more supernaturalists who value science and use it correctly, the better.

Of course, this does not mean that the Provisory methodological naturalist assumes that a greater number of people will become scientists as a result. Simply allowing scientific evaluation of supernatural objects will not necessarily lead to an increase in the number of physicists, for example. Rather, what I am concerned with here is the inclusion of two groups of supernaturalists. The first group consists of supernaturalists who do not use the scientific method regularly but want to use it to test their beliefs. The second group consists of supernaturalists, such as the parapsychologists, who do use the method regularly but use it incorrectly (thereby getting the false positives that lead to their ontological supernaturalism).

Provisory methodological naturalism is advantageous because it allows for both of these groups to be included among those using science. Both groups have positive views about science and the scientific method. Both groups want scientific support for their claims.

If naturalists are serious about their method, they would do well to take these supernaturalists' claims seriously and work with them to ensure their utilization of the scientific method is correct.

The second reason why allowing supernaturalists to use science and naturalists to scientifically evaluate supernatural objects is important is that doing so could, at least in theory, foster *real* cooperation between the opposing views. The Argument from Cooperation in support of Essential Methodological Naturalism discussed in the previous chapter held that both naturalists and supernaturalists would benefit from an agreement mandating that each group refrain from interfering with the opposing camp. However, that argument failed because the distinction it makes between naturalists and supernaturalists cannot be clearly defined. If the distinction between naturalists and supernaturalists is not clear, then the argument's assumption that both camps can refrain from interfering with each other is implausible. However, under Provisory Methodological Naturalism, we do not need to worry about distinguishing between the two camps. Everyone is free to use the scientific method, regardless of how one self-identifies. And by allowing investigation of the supernatural, it could be said that Provisory methodological naturalists are willing to lend the weight and respectability of science to supernatural claims and that, should a supernatural phenomenon ever be proven scientifically, such an event would have the added gravitas of scientific authentication.[3] This, it seems, is more in the spirit of cooperation than a situation in which methodological naturalists refuse to allow supernaturalists to utilize their method at all.

On a related note, we might wonder how real cooperation could ever occur between Essential methodological naturalists and supernaturalists if Essentialists believe their own method is antithetical to any form of supernaturalism. Alongside the Essentialist belief that science cannot evaluate supernatural objects must lie the corresponding belief that non-naturalists cannot utilize the natural method to evaluate their non-natural objects. The result, as we saw, is that the Essentialist Argument from Cooperation sees naturalists and supernaturalists in segregated groups. So, what comes from the Essentialist approach is not really "cooperation" in the traditional sense, at least if the traditional sense of cooperation requires integration. Rather, the result is more like a mutually agreed-upon tolerance. Naturalists and supernaturalists, in segregated camps, tolerate each other's presence. On the

[3] Of course, much of the tension between naturalists and supernaturalists concerns the genuineness of this offer given that science has, so far, been unwilling to accept any evidence of the supernatural as valid.

other hand, the Provisory methodological naturalist has no such reservations about the scientific evaluation of supernaturalists' claims. The interaction which the Provisory view allows is more in the spirit of cooperation than having the two self-ascribed sides of naturalism and supernaturalism completely refrain from interaction or commenting on the opposing view. As such, this current "argument from cooperation" in support of Provisory Methodological Naturalism succeeds where the one for Essential Methodological Naturalism failed.

3.4.3 Benefits of Provisory Methodological Naturalism: Acceptance of Scientific Work on the Supernatural

Finally, Provisory Methodological Naturalism is important given the amount of worthwhile scientific work that has already been done on various claims made by supernaturalists. As Victor Stenger points out, many rigorous and well-funded studies have been conducted at highly respected institutions on subjects concerning the supernatural (Stenger, 2007, p. 29). These include research into the efficacy of prayer (Benson et al., 2006), therapeutic touch (Rosa et al., 1998) and the Eastern concept of "life energy", or *qi* (Colquhoun and Novella, 2013) among others. We want to say that these investigations are worthwhile and tell us something about the existence, or lack thereof, of truly supernatural phenomena. Indeed, many scientists likely use this data as grounds for their ontological naturalism.[4] However, it may seem that Essential Methodological Naturalism requires us to admit that experimentation to evaluate the existence of supernatural things is useless. BBB state

> The definition argument for [Essential Methodological Naturalism] sits uncomfortable with the fact that reputable scientists and sceptics have investigated allegedly paranormal phenomena which, if corroborated through repeatable and careful experiments, would point to the existence of supernatural forces, or at least so they claim...If defenders of [Essential Methodological Naturalism] are correct that science cannot deal with the supernatural "by definition", does it mean that these experiments were pointless to begin with… (Boudry et al., 2010, p. 230–31)?

[4] For example, (Dawkins, 2007).

Essential Methodological Naturalism seemingly cannot reconcile itself with the idea that strong scientific work of this sort has been and will be done on the supernatural. A view which holds that science cannot evaluate supernatural objects cannot be reconciled with the view that scientific studies of supernatural phenomena are potentially viable. So, we might want to say that Provisory Methodological Naturalism is preferable because it allows that competent work done in this area is indeed potentially viable. Of course, not all scientific work on the supernatural can be considered competent. Surely some fail to meet the required standards. However, there are plenty of adequately designed and well-executed studies of the sort noted above. Provisory naturalists will see these studies and their findings as valid.

But it cannot merely be the fact that Provisory naturalism allows this scientific work to be valid that makes it preferable over Essentialism. The Essentialist will simply disagree that this allowance is an advantage and we are back to where we began. In other words, we cannot simply point to the fact that the Provisory naturalist holds this different view and call it an advantage. We must go a step further and show exactly *why* allowing for this scientific work is advantageous. Therefore, I would argue that allowing this work is an advantage for certain Provisory methodological naturalists because it allows them to validate their ontological naturalism. Provisory naturalists can argue that supernatural objects or phenomena have not yet been proven scientifically. None of these competent studies have findings which support supernaturalism and this conclusion, according to Provisory naturalists, is quite telling. Essential Methodological Naturalism, on the other hand, seems to deprive the methodological naturalist of this valuable ability.

However, there is a caveat: As previously noted (2.4) Essential methodological naturalists do not necessarily hold that science is incapable of observing objects which the Provisory methodological naturalist would categorize as supernatural. Essentialists do not argue, for example, that science does not have the ability to observe ghosts. Essential Methodological Naturalism merely holds that those objects, should they be observed, would be automatically naturalized upon discovery. Any scientific work that is thought to prove the existence of supernatural objects is merely proving the existence of heretofore undiscovered natural objects. We might notice that BBB present their idea in the form of a question in the quote above. They correctly refrain from explicitly stating that Essential methodological naturalists see such science as futile. Rather they seem to be asking *if* we should take the Essential methodological naturalist position to be that experimentation is pointless. Were they to argue or insinuate that the Essential methodological naturalist must

consider all scientific experimentation on the supernatural inane, they would be wrong. For there is inherent value in the discovery of heretofore unknown natural objects. And unknown natural objects are, again, what Essentialists would take discovered supernatural objects to be.

This is a crucial point and deserves further analysis. Thus far I have argued that, with the above caveat in mind, Essentialists prohibit scientific evaluation of the supernatural while Provisory proponents allow it. This difference in approach to the question of scientific evaluation can be attributed to the two views' approach to classification: Essentialists hold that all "supernatural" objects discovered scientifically are, necessarily, incorrectly-classed natural objects. Provisory naturalists, on the other hand, hold that all discovered supernatural objects are not necessarily misclassified. If we fail to recognize the scare quotes here it may seem that the Essentialist holds *both* that science can evaluate the supernatural and that it cannot. In reality, the Essentialist believes that science can evaluate "supernatural" objects (incorrectly-classified natural objects) but not supernatural objects (*truly* supernatural objects). The former may include the things we commonly conceive of as supernatural (ghosts, demons, etc.). The latter, if they exist, must be spatiotemporally distinct from our world according to the Essentialist (because science observes everything in our own world and everything in our world is natural). The Essentialist will agree that scientific work on the former objects is useful even though labeling them supernatural is incorrect. But the Essentialist will also say that, since *truly* supernatural objects are necessarily spatiotemporally distinct from the natural world, scientific work on them is worse than useless. It is impossible.

How then is the Provisory methodological naturalist's position on scientific work an advantage over the Essentialist's view on the matter? Both views hold that there is value in scientific work done on the paranormal. One view (Provisory) simply holds that the subjects of studies may be truly non-natural while the other view (Essential) argues that the subjects are always only ever natural objects. The Provisory Methodological Naturalist view on scientific work is preferred because it offers stronger support for ontological naturalism than the alternative. The reason why it offers stronger support concerns the first benefit of Provisory Methodological Naturalism discussed: falsifiability. The methodological naturalist who aims to support ontological naturalism is better equipped with Provisory Methodological Naturalism than with the alternative because the Provisory view embraces falsifiability generally and the falsifiability of ontological naturalism specifically.

In Chapter Two, I argued that a falsifiable ontological naturalism is preferable to an unfalsifiable ontological naturalism. Evidence for ontological naturalism gathered in a context in which the ontology may be falsified is preferable to evidence for ontological naturalism gathered in a context in which ontological naturalism is unfalsifiable. The former context is Provisory Methodological Naturalism while the latter is Essential Methodological Naturalism. Scientific work can only truly support ontological naturalism if the support is falsifiable (again, keeping in mind that scientific support for ontological naturalism may come in the form of a *lack* of evidence for supernatural objects. This form of evidence would be falsified by the production of *truly* supernatural objects).

Both the Provisory view and the Essentialist view claim support for ontological naturalism via the lack of evidence for existing supernatural objects. The lack of evidence for ontological supernaturalism serves as positive evidence for ontological naturalism.[5] But the Essential methodological naturalist couples her positive evidence of ontological naturalism with unfalsifiability. And such a coupling is immediately unattractive. In saying that evidence for ontological naturalism can never be falsified, the Essentialist is really saying that the current state, in which no evidence for the supernatural exists, *will never change*. Put this baldly, the unfalsifiability of Essential Methodological Naturalism is quite difficult to accept. It is much more difficult to accept than the Provisory alternative. Provisory and Essential naturalists' evidence for their ontological naturalism may be identical in all respects other than falsifiability. But even if that were the case, the evidence would not be equal. The Essentialist's evidence for ontological naturalism, when coupled with unfalsifiability, is not equal to the Provisory methodological naturalist's falsifiable evidence for ontological naturalism.

We can summarize the basic tenets of the two forms of methodological naturalism and our justification of the third benefit of Provisory Methodological Naturalism in the following way. In its investigations into the supernatural, science has failed to discover evidence for supernatural objects. Therefore, we are justified in believing that a lack of evidence for the supernatural supports the claim that only natural things exist (ontological

[5] It seems that evidence for the non-existence of anything, including supernatural things, must take the form of a lack of evidence for that thing. Obviously, theorizing in this way about the non-existence of something is not uncommon in science. There are assorted reasons why an object or phenomenon may be thought to be unlikely. For example, its existence may be inconsistent with observed truths about the world. Or, the data gathered in support of its existence may be shown to be unreliable. But the most straightforward reason may be that there simply is no evidence for its existing.

naturalism). However, as Provisory methodological naturalists, we recognize that evidence for the supernatural may one day be discovered. In that case, ontological naturalism would be proven false. The Essential methodological naturalist, meanwhile, holds that science has yet to discover the things which the Provisory naturalist would deem supernatural (ghosts, God, etc.) but that, if it did, these things would automatically be natural things. Because of this caveat for automatic naturalization, the Essential methodological naturalist is not on an equal epistemic footing with the Provisory naturalist. Her unfalsifiable evidence for ontological naturalism is not as strong as the Provisory naturalist's falsifiable evidence for it. We might say that the evidence for ontological naturalism (which, again, comes by way of a lack of evidence for the supernatural) is more powerful for the Provisory naturalist because it is, as science demands, falsifiable.

It is important to remember that no study or experiment, taken either individually or collectively, can tell us whether Provisory Methodological Naturalism is true or its opposing view false. It is also not the case that we should be Provisory methodological naturalists simply because, if we are not, all this scientific work will go to waste. Both Essential and Provisory methodological naturalists can claim that evidence gathered from scientific work supports their ontological naturalism. However, the Provisory method is the only one to hold that what science observes may be supernatural rather than natural. This, coupled with the fact that proper scientific evidence must have the element of falsifiability as one of its properties, guarantees that Provisory Methodological Naturalism better supports ontological naturalism. Thus, Provisory naturalism is more beneficial to the methodological naturalist who is also an ontological naturalist.

3.5 Conclusion

I began this chapter by first explicitly defining Provisory Methodological Naturalism. This involved re-labeling what we had previously referred to as simply "methodological naturalism" and "standard methodological naturalism". Following this, I examined some of the practical consequences of the Provisory view resulting from the discovery of the supernatural. I then went on to argue that the Provisory view is beneficial because it (1) embraces falsification, (2) fosters true cooperation, and (3) is better equipped to present evidence for ontological naturalism gathered from scientific work.

In the next three chapters, I will present and respond to arguments in opposition to my preferred form of methodological naturalism, the Provisory view. Each argument roughly corresponds to one or more of the benefits noted above. The main argument in Chapter Four, for example, concerns benefit (1). This argument questions the need for falsification and presents a revised version of the Argument from Automatic Naturalization. The primary argument in Chapter Five concerns both (1) and (2). It questions our ability to distinguish between the natural and supernatural which, likewise, directly concerns falsification and the first benefit. But distinguishing between the natural and the supernatural is also a prerequisite to the second benefit of "real cooperation" between naturalists and supernaturalists. Obviously, naturalists and supernaturalists must be distinctive as groups for there to be any cooperation between them. Finally, the argument in Chapter Six concerns benefit (3). This argument questions whether scientific work can truly be done on every supernatural claim. In this chapter, I will discuss experimentation done on intercessory prayer.

4. Defending Provisory Methodological Naturalism: The Inductive Naturalization Problem

4.1 Introduction

Many opponents of Provisory Methodological Naturalism, including all Essential methodological naturalists who endorse the Argument from Automatic Naturalization, will find themselves at odds with the first benefit of Provisory Methodological Naturalism given in the previous chapter. They will not think that the falsifiability of the Provisory naturalism thesis is beneficial. Essentialists believe that disproving ontological naturalism is impossible in our world. So, for them, there is no way that holding ontological naturalism to be falsifiable could ever be a benefit. To the Essentialist, any object or phenomenon observed by science must be natural since a natural method simply cannot identify a supernatural object. Obviously, a natural method can help affirm a *natural* ontology. One can easily imagine such cases. Using a particle accelerator to discover new particles is using the natural method of science to add new members (the newly discovered particles) to the set of natural things the ontological naturalist believes in, for example. Likewise, we can imagine how a *supernatural* method could lead to one's holding a supernatural ontology. For example, a séance ritual might compel a belief in the existence of ghosts. But it is more difficult to imagine how a natural method could prove the existence of supernatural things. It appears the use of natural methods to observe objects would require those objects to be natural. A scientific instrument that records evidence of the active ethereal remnants of the recently deceased would, necessarily, be recording something which is natural (perhaps because, some might argue, it is taking place in our world or, in spacetime). Any observable, measurable thing must be a natural thing. An opponent of the Provisory view following this line of reasoning will want to say that any "supernatural" objects discovered through science would simply be natural objects and that we would expand our natural ontology to include them. Discovered ghosts would, therefore, be natural ghosts. A discovered God would be a natural God. All of this might be thought of as not so much an argument for the unfalsifiability of naturalism, although that is implied, but rather an assumption of what it is to do science. In other words, science itself assumes an unfalsifiable ontological naturalism.

Provisory Methodological Naturalism's claim, then, is twofold; it holds that (1) science can evaluate supernatural objects but also (2) supernatural objects can, in principle,

be *naturally* (scientifically) proven to exist. One of the goals of this chapter will be to defend Provisory Methodological Naturalism by defending (2) against a modified version of the Argument from Automatic Naturalization. We must hold that the supernatural objects which science can evaluate should not be automatically classified as natural objects. This is at the very core of Provisory Methodological Naturalism. When answering the question of how to address supernatural objects under Provisory Methodological Naturalism we should argue that science has, until now, successfully shown ontological naturalism to be correct (despite calls by ontological supernaturalists to the contrary). Having said this, it may be the case that a supernatural phenomenon is someday proven scientifically but not explained naturally.

Opposed to this Provisory Methodological Naturalist position is the Inductive Form of the Argument from Automatic Naturalization or, simply, the Inductive Form. Like the standard Argument from Automatic Naturalization, the Inductive Form is based on the above idea that the pairing of a natural methodology with a supernatural ontology is (despite the atheist parapsychologist's assertions to the contrary) impossible. One cannot use natural methods to prove the existence of supernatural things. The Inductive Form remains a version of the Argument from Automatic Naturalization because many of its premises and its conclusion are the same. It likewise reasons that, if it is impossible for supernatural objects to remain supernatural after being discovered through natural means, then those objects must be automatically natural. And it also concludes that ontological naturalism must, therefore, be unfalsifiable. But the Inductive Form differs from the standard Argument in one important way. It attempts to defend an inductive assumption of the unfalsifiability of ontological naturalism (automatic naturalization) by citing historical precedence rather than simply asserting in its premises that every "supernatural" object is automatically natural as a brute fact.

In the following section, I will present the structure of the Inductive Form argument. Following this, I will offer some responses. Section 4.3.1 will focus on the probabilistic nature of inductive reasoning. Section 4.3.2 will focus more generally on the problem of induction and the reductionist tendencies of the anti-Provisory methodological naturalist. I conclude that, for both of these reasons, the Inductive Form argument fails.

4.2 The Inductive Form of the Argument from Automatic Naturalization

Recall that the standard Argument from Automatic Naturalization is

> (1) Science is not equipped to evaluate supernatural objects (Trait 2).
>
> (2) Given (1), whatever is shown to exist via scientific methods must be natural (Even if science were to prove the existence of purportedly supernatural objects, those objects would be natural rather than supernatural).
>
> (3) Science is the best and only method for discovering the properties of reality and what exists. (Trait 1)
>
> Therefore,
>
> (4) Given (2) and (3) ontological naturalism (the thesis that only natural things exist) cannot be disproven in our world.
>
> Also,
>
> (5) Given (4), Essential Methodological Naturalism is the best form for the methodological naturalist (especially a methodological naturalist who is also an ontological naturalist) to hold.

My earlier response to this argument involved attacking (4). I did so by offering a defense of falsifiability. Since the Argument from Automatic Naturalization merely assumed the unfalsifiability of ontological naturalism, in showing that such an assumption is not justified, we are able to challenge both the Argument as well as the validity of the Essentialist view itself. Additionally, in introducing and defending Provisory Methodological Naturalism, I have also supplied a response to (1). Again, Provisory naturalism holds that, contrary to (1), science is indeed equipped to evaluate supernatural objects. This principle is at the heart of the Provisory view. If the Provisory view is correct, then both (1) and Essentialism are false.

In this section, I will introduce and critique an Essentialist argument that attempts to provide additional support for (1). I call this argument the *Inductive Form* of the Argument from Automatic Naturalization. It may be constructed in the following way:

(1) We are justified in holding that science cannot prove the existence of supernatural objects just in case there has never been an instance of science proving the existence of supernatural objects.

(2) There has never been an instance of science proving the existence of supernatural objects.

(3) Therefore, we are justified in holding that science cannot prove the existence of the supernatural.

These first three premises are exclusive to the Inductive Form. They replace the first premise from the original argument which simply held that science cannot evaluate supernatural objects. We can now apply the remaining premises (2-3) and conclusions (4) and (5) from the original Argument from Automatic Naturalization.

(4) Given [(1)-(3)], whatever is shown to exist via scientific methods must be natural (Even if science should prove the existence of purportedly supernatural objects, then those objects must be natural rather than supernatural).

(5) Science is the best and only method for discovering the properties of reality and what exists. (Trait 1)

Therefore,

(6) Given [(4) and (5)] ontological naturalism (The thesis that only natural things exist) cannot be disproven in our world.

Also,

(7) Given [(6)], Essential Methodological Naturalism is the best form for the methodological naturalist (especially a methodological naturalist who is also an ontological naturalist) to hold.

The proponent of the Inductive Form asserts that we are justified in holding that science cannot prove the existence of supernatural objects because it has never been the case that natural methodology has proven the existence of the supernatural. Throughout history, all proposed natural evidence of the supernatural has either been shown to be invalid or, if genuine, been shown to indicate purely natural phenomena. Positing the supernatural as an

explanation for the phenomena is incorrect. Thus, a natural methodology entailing a supernatural ontology is impossible.

Although the ontological supernaturalist may claim that science provides evidence of the truth of her ontology, the proponent of the Inductive Form holds that supernaturalist evidence, when presented in a form that can be properly examined (as opposed to evidence which is too slight to examine, too ambiguous to pronounce on, or which has been intentionally falsified), has always turned out to indicate only natural phenomena. Every supposed supernatural phenomenon has proved to be explainable using natural phenomena. Each proof provides additional support to the Inductive Form's second premise. Here I will focus on a few cases.

The first category of events which are believed by some to indicate supernatural phenomena but which have an alternative natural explanation is spirit communication. Spirit communication is any attempt by otherworldly beings to contact the natural realm, often using instruments such as pendulums or Ouija boards. In these cases, the effects of a pendulum swinging in a specific direction or of an indicator on a lettered board moving to spell out words are believed to be evidence of supernatural entities communicating with our world. However, as documented extensively in numerous studies (for example, Pfister et al., 2010; Shin et al., 2010), such phenomena are explainable as the workings of a natural response called the *ideomotor effect*. In certain conditions, appendages of the human body can produce very slight movements which the brain is unable to consciously detect. Regarding the examples given above, the hand might produce minute undetectable movements strong enough to slide a planchette on a Ouija board or initiate the swing of a pendulum. In such cases, to assume the cause of these movements to be supernatural is obviously a mistake. Unfortunately, the subject initiating the movement is usually unaware of her own involvement and may indeed attribute the results to outside non-natural forces.

In addition to spirit communication, the effect of feeling the presence of invisible non-material beings such as ghosts can likewise be attributed to natural sources. For example, in some cases, ultra-low frequency sound waves called infrasound are the cause. Infrasound waves are waves of a frequency just below the normal range of hearing. They do not consciously register as audible sound. These unheard sounds can register *unconsciously*, however. According to research, they may evoke feelings of fear and unease in the listener (Tandy, 2000). Infrasound waves have even been known to cause visual

hallucinations if emitted at a frequency that vibrates the subject's eyeballs. Vic Tandy, an engineering designer whose pioneering research popularized infrasound, reported seeing human-shaped gray figures at the periphery of his vision as a result of such eye vibrations (Tandy and Lawrence, 1998).

Other oft-reported non-material beings include menacing ghostly presences who seem to physically restrain their sleeping victims. These presences are now known to be the result of a physiological phenomenon known as sleep paralysis. A person experiencing such paralysis is unable to move or speak during the process of falling asleep or waking. Sleep paralysis is primarily the result of the Rapid Eye Movement (REM) state of sleep intruding into wakefulness. During REM sleep, the brain is active but the body is effectively paralyzed. Sufferers of sleep paralysis find their paralyzed state still in full effect for a brief period after they become conscious. Their mind is fully awake and yet their body remains frozen. Many who experience such paralysis claim to feel a weight or pressure preventing their movement. Some sufferers attribute the cause of the force to an unseen agent, often thought to be both supernatural and malevolent in nature.

A final category of phenomena which many believe provides evidence of the supernatural but which, upon scientific investigation, prove to have natural explanations are Near Death Experiences (NDEs). Individual NDEs vary in form but most share the common characteristic of exposing the subject to a non-natural realm, typically believed to be the afterlife, during a traumatic and/or life-threatening ordeal. The supernatural component of an NDE might be the non-natural realm itself, often thought of as Heaven, or a passage leading to it. Or, like spirit communication, the supernatural component of NDE's might consist of supernatural beings. For example, the subject might meet deceased friends or family. It might also consist of the existence of a non-material soul in which form the subject may take. Thus, NDEs are often cited as evidence for dualism.[1] Since the exact form which NDEs take varies, the natural explanations for each experience also vary. That said, elements which are commonly reported, such as traveling down long tunnels, seeing a bright light or floating outside one's body, are usually explained by the effects of oxygen deprivation and the workings of the brain and visual cortex (Blackmore, 1991; Jansen, 1990). Thus, NDE's, along with all the above purported supernatural phenomena, have proven to be purely natural phenomena. The Inductive Form proponent can reason that since

[1] Although, not all interpretations of dualism are supernaturalistic. For example, see (Chalmers, 2007, 1996).

past phenomena of this sort are explainable naturally, future phenomena will be likewise explained.

But the proponent of the standard Argument from Automatic Naturalization may wonder why Essentialists using the Inductive Form feel the need to examine the data at all. They might argue that we do not need to insist that the data points to supernatural things being merely natural things when we can merely automatically naturalize all observed supernatural things. All that needs to be done is to simply conclude than anything observed by science is natural. The support for this is already in the original Automatic Naturalization argument. However, the Inductive Form proponent will not find this convincing. Essentialists using the Inductive Form do not take automatic naturalization as a matter of faith. Again, the Inductive Form seeks to provide additional motivation for its assumption of ontological naturalism unfalsifiability. We can reason inductively that science will never observe the supernatural because it has never done so. Any instances where it was thought to have done so, such as in the cases above, were only observations of natural things.

Thus, the proponent of the Inductive Form uses these various examples of natural explanations for supernatural phenomena in her claim that any future discovery of evidence for purported supernatural phenomena will instead be evidence of natural phenomena. She can then conclude that any pairing of a natural method with a supernatural ontology is inconsistent. We should look, the Inductive Form proponent argues, at the natural explanations behind spirit communication, ghosts, and NDEs and conclude that similar natural explanations will apply to any supernatural claim. This would include claims which report evidence that would seem to even a conclusive majority of people to be irrefutable proof of the supernatural. The history of science is full of unheard of and unimagined discoveries that were truly unexpected and surprising. However, we could not classify such discoveries as unnatural merely based on their being surprising. Nor could we classify them as unnatural simply because they pertained to information and substances which were, until that time, unknown.[2] Once these surprising ideas were tested and approved, the enterprise of science eventually changed to accommodate them. Perhaps the same may someday be said of ghosts. We may someday discover evidence, the likes of which we cannot now imagine, to support the existence of ghosts. But science will adapt and accommodate such

[2] We can easily imagine future discoveries, such as alien life, which would likewise be unprecedented yet undoubtedly natural.

evidence. If such evidence were found, we should classify it, and ghosts themselves, as natural.

A few things are immediately noteworthy regarding the Inductive Form. Critics might see these things as problems inherent in the argument. However, I believe these immediate issues can (unfortunately, for those of us unsympathetic to Essential Methodological Naturalism) be dismissed by the Inductive Form proponent. First, a critic might note that the transition from the standard Argument from Automatic Naturalization to the Inductive Form involves making the transition from arguing that science cannot *evaluate* supernatural objects to arguing that science can never *prove* the existence of the supernatural (see the first premise of both arguments). If these two processes are different, then it may be that the Inductive Form is problematically formulated. Perhaps making this transition is not justified.

However, this transition does seem to be justified and, therefore, cannot be pointed to as problematic. Until now, I have assumed that the process of evaluating a theory and the process of proving or disproving a theory is mostly the same. The latter merely involves an additional concluding step. To prove or disprove a claim one must evaluate it and then simply make a conclusion based on that evaluation. This additional step does not seem to negatively impact the Inductive Form's effectiveness. The act of proving involves evaluation and, so, the Inductive Form's transition from *evaluate* to *prove* is wholly acceptable.

Thus, premise (1) appears solid. However, critics might instead hold that (2) is extremely difficult, if not impossible, to prove. Recall that premise (2) is

> (2) There has never been an instance of science proving the existence of supernatural objects.

Since the dawn of mankind, there have been innumerable instances of purported supernatural events or phenomena. The sheer volume of these instances makes accurately pronouncing on their overall veracity a highly unlikely task. How can we make the wide-sweeping assumption that none of these instances really happened? It does not seem, the argument goes, like we can. And if (2) cannot be assumed, then the Inductive Form fails outright.

Unfortunately, this second response also fails to dismiss the argument. Responding that (2) is impossible to prove merely misunderstands the premise. Premise (2) only holds that no supernatural claim has ever been proven *scientifically*, or, we might say, to the satisfaction of mainstream science. This is a lesser claim than one holding that no supernatural claim has ever been proven *simpliciter* and so is easier to assume. Granted, there are still many people, including our hypothetical atheist parapsychologist and many real parapsychologists, who would not accept (2) and would hold that scientific observation has indeed proven the existence of the supernatural. I do not believe this to be the case. However, definitively answering such an assertion here is problematic for purely practical reasons. To support their claim, supernaturalists must present specific instances of scientifically-observed supernatural occurrences. And, as most know, instances of *purported* supernatural activity (paranormal, religious, etc.) are quite common. While I will soon discuss a few of these cases, definitively answering the supernaturalists' allegation would require the critical examination of *every* purported scientifically-observed supernatural claim. Obviously, that is well beyond the scope of this thesis. I cannot, though it may theoretically be possible, provide a refutation to every claim of scientific validation of supernatural objects here.

In response, the supernaturalist might argue that such universal refutation is required. She may insist that, unless science can provide a natural explanation for every supernatural claim, then we are not justified in holding premise (2) to be true. However, I would again refer to the caveat noted above that (2) is only referring to instances where science already has investigated the supernatural claim. (2) does not hold that all supernatural claims have been refuted by science. Instead, it is saying that, in all cases in which purported supernatural phenomena have been investigated scientifically, no such phenomenon has ever been verified as truly supernatural. So, while we may not be able to respond to every purported occurrence of the supernatural, we can at least make the following claim: Accepted science has yet to prove the existence of non-natural objects or phenomena. Mainstream research is simply not producing evidence of the supernatural.

There are other problems with parapsychologists pointing to various findings in that field as "scientific proof" of the non-natural. To begin with, parapsychology itself has had its scientific credentials questioned. Examples of work that critiques the idea of parapsychology being a science include (Bunge, 1987; Churchland, 1987; Kurtz, 1985). All of these authors compare methodologies in "established" sciences such as physics,

chemistry, and biology with parapsychological methods. According to them, the latter always comes up short. Those who, like these authors, do not believe that parapsychology is a science will obviously not see any of the field's conclusions as scientific.

But even if we dismiss these arguments and go so far as to allow that parapsychology is a science, we still cannot argue that it is a mainstream one. Parapsychologists themselves will be the first to acknowledge that their discipline has a long way to go before it is to be considered in the same category as physics or astronomy. As such, we can conclude that, despite the purported parapsychological findings, there has yet to be a single case in which a supernatural phenomenon has been verified by the majority of researchers in mainstream science.[3]

4.3 Responses to the Inductive Form of the Argument from Automatic Naturalization

In the next two sections, I will address responses to the Inductive Form. At this point, however, the average ontological naturalist, either of the Essentialist or Provisory variety, may wonder what, exactly, is wrong with the reasoning just presented. For the above merely seems to be the way science normally works. A hypothesis is made, tested, disproved, proved or found to be inconclusive. Should a new object be discovered, say a new form of matter, this object would be deemed natural. Why, then, is it wrong to assume that *any* object so observed should likewise be classified as natural, rather than remain supernatural?

Here it is important to acknowledge some things concerning the differences between the Provisory and Essentialist views as well as some things concerning the relationship between those two views and the Inductive Form argument. To begin with, the disagreement between the Provisory view and Essential Methodological Naturalism lies not in the above-described methodology nor in the way each holds that science should advance. Rather the difference between the two views lies in how the naturalistic method suggests a naturalistic ontology. Again, the Essentialist holds that no discovery could ever threaten a naturalistic ontology as all things that exist in our world are and will always be natural. Meanwhile, the Provisory methodological naturalist knows it is wrong to make such a claim since

[3] While the scientific status of certain fields may be up for debate, it seems that someone might be a methodological naturalist even if she herself is not doing valid science. Recall our atheist parapsychologist example in which I hold the parapsychologist to be a methodological naturalist. Even if parapsychology is not a science, the parapsychologist can still believe that science is the best and only tool for discovering the properties of reality. And my conception of methodological naturalism merely requires this belief.

ontological naturalism is fallible. What is right to assume today could be wrong to assume tomorrow.

The premises and conclusion of the Inductive Form will surely look suspect to anyone who reasons that we can never assume that the future will be the same as the past. Indeed, the conclusion made by the argument is sweeping: Science can never prove the existence of supernatural objects. Many individuals sympathetic to Hume's problem of induction (and all Provisory methodological naturalists) will consider this too presumptive. But, again, one of the characteristics of the anti-Provisory view is an over-reliance on science and ontological naturalism. Science has, until this point, supported ontological naturalism and so, they believe, it is reasonable to conclude that it will continue to do so indefinitely. As we have previously seen that all Essential methodological naturalists must also be ontological naturalists (2.4), it is understandable that these opponents of Provisory Methodological Naturalism would make this assumption. For as long as one remains an Essential methodological naturalist, one must remain an ontological naturalist. And, as one's ontological naturalism is entailed by one's method, there is no room for science proving the truly supernatural for the Essentialist.

How then, as Provisory methodological naturalists, are we to respond to the Inductive Form? A direct response must obviously criticize one of the three premises exclusive to that Argument. However, only one of the three premises *can* be criticized because the other two are obviously true. The two true premises are (2) and (3). Neither of these two premises can be faulted. Therefore, we are left with (1) as the only exclusive premise which may be questioned and criticized for possible flaws. To see why this is the case I will now revisit the three premises.

The first of the three exclusive premises, (1), is an assumption of the truth of induction. It holds that, if it is true that science has not proven the validity of the supernatural in the past, then the same will hold true in the future. The second exclusive premise, (2), states that it is true that science has not proven the validity of the supernatural in the past. The third and final exclusive premise, that science cannot prove the existence of the supernatural, is drawn from (1) and (2). Because (3) logically follows from the conjunction of (1) and (2), it cannot be questioned unless there is a problem or problems inherent in the first two premises. Thus, we know that (3), in and of itself, is a true premise. Likewise, premise (2) is true. It is the case that there have never been any instances of scientific

validation of supernatural claims. Therefore, the only premise left to take issue with is the first.

Although we may be limited in which premise of the Inductive Form can be addressed, we are not limited in how to address it. At least a couple different responses to premise (1) exist. One method of critiquing the first premise of the Inductive Form involves critiquing inductive reasoning itself. This type of response highlights the problem of induction: "There is a problem with the use of inductive reasoning in *any* circumstance. Therefore, the Inductive Form, which utilizes such reasoning, is problematic." While this method of critique can be effective, it is also quite common. More interesting for our purposes here, I believe, is to argue that there is a problem with Essential methodological naturalists using the inductive reasoning of the Inductive form. Namely, a characteristic inherent in inductive reasoning contradicts the tenets of the Essentialist view.

I will focus on this latter method first. My first response will explore the fact that, as an inductive argument, the Inductive Form is inherently probabilistic. Because of this, the Inductive Form does not allow for the certainty which naturalist opponents of Provisory Methodological Naturalism require. In other words, the inductive reasoning of the Inductive Form contradicts the opponents' own Essential Methodological Naturalism. My second response will then cover the former method and briefly examine the general problem of induction. I have already focused on just such a response with regards to the standard Argument from Automatic Naturalization. However, my follow-up here will be slightly different. Here I will critique the reductionism inherent in both the Inductive Form as well as Essential Methodological Naturalism itself. We are not justified in automatically *reducing* supernatural objects to natural ones or, in other words, holding that ontological naturalism is unfalsifiable in our world. The problem of induction shows us that, while it may be the case that science has only discovered natural things in our world, we cannot use inductive reasoning to assert that this will always be the case. In advocating an anti-reductionist view, I will hold that we can never reduce all supernatural objects to natural ones simply because supernatural alternatives (within our world) will always remain. Therefore, the Inductive Form of the Argument from Automatic Naturalization fails to disprove Provisory Methodological Naturalism.

4.3.1 Response to the Inductive Form: Induction and Certainty

As previously noted, the Inductive Form differs from the standard Argument from Automatic Naturalization in one important way. While the standard argument merely assumed the truth of Trait (2) ("Science is not equipped to evaluate supernatural objects"), the Inductive Form seeks to provide justification for Trait (2) using the exclusive premises (1-3). The Inductive Form substitutes these exclusive premises in place of Trait (2). In doing so, these exclusive premises are thought to support the Inductive Form's fourth premise, that whatever science observes must be natural (Again, in the standard Argument, that fourth premise simply followed from Trait (2) and the assertion that science can only evaluate natural things). But the problem with the Inductive Form and its exclusive premises is that mere inductive reasoning cannot be used to justify as strong a claim as "Whatever science observes must be natural". The opponent of Provisory Methodological Naturalism requires certainty here. To support her view, this opponent must include in the Inductive Form the premise that science can *never* observe the supernatural or that whatever is shown via science must *always* be natural. But induction can only get her so far. Because induction is inherently probabilistic, such conclusions of certainty are impossible to draw.

It may help to unpack these ideas somewhat. First, we might question why the opponents of Provisory Methodological Naturalism must include such a strong premise. Why must Essentialists hold that science can *never* observe the supernatural? The reason is simple. If Essential methodological naturalists were not so stringent, if they could admit even the tiniest possibility of supernatural observation, then they would not be Essential methodological naturalists. Instead, they would be Provisory methodological naturalists who hold that scientific observation of the supernatural is in fact possible. Such stringency is, therefore, required to differentiate the two views. In other words, certainty is a requirement for the Essentialist to remain an Essentialist.

Next, we might re-examine Trait (2), or the notion that science is limited to the natural realm, in the context of this Inductive Form argument. Again, the standard Argument from Automatic Naturalization took Trait (2) as given: Science cannot evaluate supernatural objects because science, by definition, is limited to the observation of natural things. The Inductive Form, on the other hand, wants to justify Trait (2) based on historical evidence and an inductive leap: Trait (2) is true because science has never evaluated the supernatural in the past (and, therefore, will never do so in the future). It is here, in the employment of induction, that the Essential methodological naturalist runs into problems. As an Essential

methodological naturalist, one must hold that science will never evaluate the supernatural in the future ("and, therefore, will never do so in the future"). But induction can only take us as far as "probably" or "likely" with regards to this scientific evaluation ("and, therefore, will *likely* not do so in the future"). Reasoning about the future based on the past can never produce non-probabilistic conclusions. So, the Inductive Form, unlike the standard Argument from Automatic Naturalization, fails to live up to the requirements of Essentialism. To see exactly where this occurs, we can look at the actual premises of the argument. In the Inductive Form, the first premise where an inductive leap is made is the third:

> (3) Therefore, we are justified in holding that science cannot prove the existence of the supernatural.

This premise requires modification. The Essential methodological naturalist opponent of Provisory Methodological Naturalism will need to modify (3) to hold that science can *never* prove the existence of the supernatural. Again, this is because Essentialism requires such certainty. But induction only allows for a probabilistic claim. Therefore, (3) should be modified to read "science will *likely* never". The same would hold true for the fourth premise:

> (4) Given [(1)-(3)], whatever is shown to exist via scientific methods must be natural (Even if science should prove the existence of purportedly supernatural objects, then those objects must be natural rather than supernatural).

Here, the Essential methodological naturalist requires that "whatever is shown to exist via scientific methods must *always* be natural. However, the Inductive Form should only allow for something like "will *probably* be natural". Because of all this, we can no longer say that ontological naturalism is unfalsifiable if we utilize the Inductive Form. All the things which science discovers will probably be natural, according to the argument, but it is not *certain* that they will be. This obviously poses a problem for the Essential methodological naturalist. In using the Inductive Form, she can no longer be an Essentialist but must be a Provisory methodological naturalist! Rather than support the Essential methodological naturalist's acceptance of Trait (2), the inductive reasoning in the Inductive Form dismantles it. Any conclusion from an inductive argument regarding the scientific discovery of the supernatural would actually support the Provisory view: All which science discovers in our world is only

likely natural, not certainly natural. Thus, induction does not allow for the Essentialist conclusion that "unfalsifiable ontological naturalism is true". The inductive reasoning of the first two premises of the Inductive Form argument does not justify the dogmatic certainty of premises (3) and (4). As ontological naturalists, we are, at most, only justified in asserting that general ontological naturalism is probably true.

However, the Essentialist may have some room to respond here. Despite the argument above, the Essentialist might argue that inductive reasoning can still provide a conclusion that she can be happy with. The Essentialist might inductively conclude that *probably science can never discover supernatural objects*.

As noted above, the inductive conclusion "All that science discovers is *probably* natural" is a Provisory naturalist conclusion. The Provisory naturalist is the only one who can reason that all that science discovers is probably natural (The Essentialist will need to say "definitely" rather than "probably"). The same holds true for the inductive conclusion "Science will *probably* never discover supernatural objects". That conclusion also supports Provisory Methodological Naturalism. However, it might be argued that the conclusion "*Probably* science can never discover supernatural objects" is an Essentialist argument. This last conclusion is simply a less-than-certain endorsement of unfalsifiable ontological naturalism.

So, the Essentialist can inductively conclude that "Probably science can never discover supernatural objects". Meanwhile, the Provisory inductive conclusion is that "Everything that science discovers is probably natural". Both conclusions hold that it is likely that science only discovers natural things. But the former conclusion is stronger than the latter. The Essentialist conclusion maintains the strict prohibition ("science can *never*") that the Provisory conclusion lacks.

What all of this means is that the Essentialist may be able to use the Inductive Form to reason inductively to a conclusion that is amenable to Essential Methodological Naturalism. Instead of arguing that the Inductive Form proves that unfalsifiable ontological naturalism is true, the Essential methodological naturalist can say that inductive reasoning allows us to conclude that *probably*, unfalsifiable ontological naturalism is true. Inductive reasoning may not allow for the original, more rigid Essentialist claim that ontological naturalism is definitely unfalsifiable. However, it does allow us to conclude that

unfalsifiable naturalism is likely. It is probably the case that everything discovered in our world is a natural object.

Although likelihood is shy of certainty, this modification still results in a strong inductive argument for the Essentialist view. The modification successfully answers my earlier concern about induction and conclusions of certainty made by the Essentialist. Additionally, we cannot simply dismiss this modified argument by labeling it Provisory Methodological Naturalism. The conclusion that "probably unfalsifiable ontological naturalism is true" is not simply the Provisory view. While the addition of "probably" does suggest the possibility of the alternative (i.e., unfalsifiable naturalism *not* being true), the Provisory methodological naturalist must hold that unfalsifiable ontological naturalism is *definitely* not true in our world. For the Provisory naturalist, ontological naturalism is definitely not unfalsifiable in our world. Therefore, "probably unfalsifiable ontological naturalism is true" is certainly an Essential methodological naturalist viewpoint.

We can even dig further into this Essentialist inductive conclusion and expand it somewhat. Recall our definition of Essential Methodological Naturalism:

> *Essential Methodological Naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists (trait 1) but that it is restricted to evaluating the natural realm (i.e., unequipped to evaluate supernatural objects) (trait 2).

The conjunction of Traits 1 and 2, according to the Essentialist, result in the unfalsifiability of ontological naturalism. The Essentialist knows that the unfalsifiability of ontological naturalism is not a necessary truth (i.e., true in all possible worlds); Rather, it is a contingent truth (i.e., true in some but not all worlds). But, while ontological naturalism is not *necessarily* true, the Essentialist might at least hold that it is a *nomologically* necessary truth (i.e., true in all worlds with the same laws of nature). The Essentialist might argue that ontological naturalism is unfalsifiable in all possible worlds that are governed by the same laws of nature as our own. The Essentialist might say that, in addition to having the characteristics listed in the definition above, Essential Methodological Naturalism is also the thesis that, given the laws of nature in this world, it is necessarily the case that whatever we discover through science is always natural.

Then, instead of holding that the Inductive Form argument leads to the simple conclusion that (definitely) unfalsifiable ontological naturalism is contingently and

nomologically true, the Essentialist might argue that the Inductive Form allows us to conclude that *probably* unfalsifiable ontological naturalism is contingently and nomologically true. If we look at the history of science, we can see that science has never discovered anything supernatural. Therefore, it is not unreasonable to conclude that, given the laws of nature in this world, it is probably the case that whatever we discover through science is always natural. It is probabilistically most likely that unfalsifiable ontological naturalism is contingently and nomologically true.

We can see that this modified Essentialist argument is at least plausible when we compare it to similar arguments with necessarily true conclusions. For example, many people coherently assume that the ontological argument, which holds that God necessarily exists, is *probably* true. These people argue that "Probably God necessarily exists" or, "Probably a necessary God exists". Irrespective of the ontological argument's merits, to conclude that the ontological argument is probably true is surely acceptable. There is nothing wrong, in principle, with arguing that probably a necessary God exists. The same might be said for unfalsifiable ontological naturalism. There is nothing wrong, in principle, with arguing that probably unfalsifiable ontological naturalism is true. "Probably necessarily *P*" is a coherent logical statement. Indeed, "Probably necessarily *P*" is strong evidence for "necessarily *P*". As such, the Inductive Form proponent might reasonably say that the *coherent* fact that probably unfalsifiable ontological naturalism is true is strong evidence for unfalsifiable naturalism being true.

These intriguing qualities of the Essentialist response may suggest it to be a strong reply to my previous worries about the Inductive Form. However, there is some doubt as to its effectiveness. Concluding that necessary ontological naturalism is probably true based solely on observations of the history of science is suspect. Making the leap from these observation claims to this claim of necessity is questionable. Again, the only conclusions we can ever make from observations of the history of science are possibility claims, not necessity claims. For example, given the history of science, it is *possible* that everything we discover in our world is a natural object. Or, given the history of science, it is *probable* that everything we discover is natural. Therefore, the most one can derive from inductive reasoning here is that objects are *most likely* natural.

Let us take *P* to represent ontological naturalism. Provisory Methodological Naturalism holds that "It is likely that *P* is true". Meanwhile, Essential Methodological

Naturalism holds that "It is necessary that *P* is true". As noted above, inductive reasoning only suggests that "It is likely that *P* is true". Therefore, we can say that the inductive reasoning suggests Provisory Methodological Naturalism. Inductive reasoning does *not* suggest the Essentialist view. "It is likely that *P* is true" is not strong enough to suggest Essential Methodological Naturalism because from "It is likely that *P* is true" you cannot derive "It is necessary that *P* is true" (or even "It is likely that it is necessary that *P*"). Having said this, while the inductive conclusion may not entail Essentialism, the conclusion is still *compatible* with the Essentialist view. "It is likely that *P* is true" is compatible with Essential Methodological Naturalism because "It is necessary that *P* is true" and "It is likely that *P* is true" can both be true at the same time. Thus, the inductive conclusion is compatible with both Essential and Provisory Methodological Naturalism even though inductive reasoning only suggests the latter.

In conclusion, the Inductive Form argument relies on inductive reasoning to motivate Essentialism or, the notion that everything which science evaluates is a natural thing. To motivate Essential Methodological Naturalism, the inductive argument must lead to the strong conclusion that everything which science evaluates will always be natural. But inductive reasoning cannot be used to support such a strong claim. As a result, the Inductive Form cannot support Essential Methodological Naturalism. And since the Inductive Form fails to support Essential Methodological Naturalism, it also fails as an argument against the Provisory view.

4.3.2 Response to the Inductive Form: Anti-Reductionism

We previously saw that the only viable form of response we can give to the Inductive Form is an argument against the Form's first inductive premise. In my first response, I argued that the opponent of Provisory Methodological Naturalism (the Essential methodological naturalist) cannot use the inductive reasoning of the first premise to justify their view. My argument focused, in part, on specific characteristics of Essential Methodological Naturalism and those characteristics' incompatibility with the Essentialist's own Inductive Form argument. In this section, I will present a more general response to the Inductive Form in defense of the Provisory view. This response concerns the reductionism inherent in the Inductive Form: The Inductive Form suggests that supernatural objects are reducible to natural ones. But such reduction is unjustified because supernatural alternatives (in our

world) will always remain. Since such reduction is unjustified, the Inductive Form fails as an argument and Provisory Methodological Naturalism is vindicated.

The Inductive Form seeks to justify the assumption that science cannot evaluate supernatural objects. It does this by asserting that all attempts by science to evaluate the supernatural in which phenomena have been shown to truly exist have really been evaluations of natural phenomena. The implication, then, is that all future evaluations of so-called supernatural objects, even those involving hitherto unknown phenomena, will likewise be evaluations of natural phenomena. There are two ways this could come about: Either the phenomena will be previously understood natural phenomena misidentified or mistakenly classified as supernatural. Or they will be (or be the result of) unknown natural phenomena, like infrasound, awaiting scientific discovery. Here we can recall McKinnon's similar assertion regarding natural laws which can never be broken (2.5.2). According to McKinnon, if someone claims to have witnessed an individual walking on water, for example, only two possible explanations for the event could exist. Either the corresponding natural law was not actually broken (because the witness was mistaken or duped), or the law which states something to the effect of "objects of a certain weight will sink when placed unsupported on water" is not, in fact, a natural law. If the latter is the case, then a *new* natural law would eventually take its place to explain the event. This new law might be something like "most objects of a certain weight will sink when placed unsupported in water unless *x* is the case" where *x* denotes the conditions in which the walking on water occurred.[4] McKinnon's argument obviously utilizes inductive reasoning since he reasons that every supernatural object or phenomenon which will ever be posited to exist will be explainable via natural law. His view is also a *reductionist* argument since it holds that ostensibly supernatural phenomena will be reduced to natural phenomena. In a similar way, the Inductive Form is also reductionist; the Inductive Form reduces supernatural objects to

[4] This analysis of McKinnon itself recalls Pigliucci's earlier criticism of Popper's strict falsifiability thesis. There, Pigliucci stated that it is wrong to discard *every* theory in which a single contrary piece of evidence is discovered. Better, he argues, to modify certain theories in a manner similar to McKinnon's creation of new, revised natural laws. I agreed with Pigliucci's criticism generally but thought it problematic with regards to the falsification of ontological naturalism. McKinnon's argument is a good example as to why this is so. Unlike Pigliucci, McKinnon would not be justified in his ad hoc modification. When the original natural law is falsified, McKinnon should not be able to simply create a new one to take its place and protect ontological naturalism like Pigliucci does to protect other theories. Instead, he should hold that, in such a case, naturalism itself would be falsified. He should not, in other words, follow the Essentialist view and merely modify the law to maintain ontological naturalism.

natural ones. A supernatural object can never exist, according to the Inductive Form, because a non-reducible, non-natural object can never exist.

Along with McKinnon's theory, the Inductive Form also mirrors physicalism in its reductionist tendencies. I noted earlier (3.3) that physicalism holds that everything that exists is physical (or supervenes on the physical) and is explainable via the science of physics. While the Inductive Form seeks to reduce the supernatural to natural objects, physicalism reduces all phenomena to physical objects. This would include little-understood and seemingly mysterious phenomena such as consciousness. Physicalist reductionism is controversial. But the Essentialist reductionism of the Inductive Form can also be questioned because of its unfalsifiability. The Essentialist opponent of Provisory Methodological Naturalism can never claim that all supernatural objects will be naturalized. Supernatural versions of or alternatives to those objects will always remain. As Provisory methodological naturalists, we can and should agree that the natural explanations supplied above for the cases of spirit communication, etc. do apply in those cases. However, we cannot say they apply indefinitely. Instances of spirit communication may be attributable to the ideomotor effect but this does not mean that it is a matter of necessity that all such instances are attributable to it. Additionally, even if we assume that we can explain a supernatural phenomenon such as ghosts naturalistically, there would ostensibly remain a version of that phenomenon which still resides outside of scientific reasoning (yet remains theoretically observable). A supernaturalist could easily accept a natural explanation for a formerly supernatural phenomenon while still holding that a supernatural version of the phenomenon remains. One can accept the existence of natural ghosts and continue to believe in supernatural ones as well. Likewise, one can accept a natural explanation of the soul while also believing in a non-natural explanation for it. Or one can accept a naturalistic account of the afterlife while positing a non-naturalistic version, and on and on. The number of times the supernaturalist might propose a supernatural version of a "naturalized" supernatural object seems limited only by the number of purported supernatural things. If this is true, then such natural explanations could never satisfy the determined supernaturalist. But whether such stubborn insistence is justified is not the point. The point is that the opponent of Provisory Methodological Naturalism will never be able to credibly assume *every* past and future phenomenon to be natural based on *a posteriori* reasoning about past scientific examinations. There will always be an alternative to those past explanations and

hypothetical future scientific discoveries. Truly supernatural objects, therefore, are non-reducible.

The idea that supernatural phenomena, while perhaps individually reducible to natural ones, could still spawn truly non-natural alternatives is an argument against the automatic reduction of all supernatural objects or, against the Inductive Form. If non-natural but observable phenomena could still be possible even after every known purported supernatural phenomenon is proven to be natural, then we cannot assert, as the Inductive Form and standard Argument from Automatic Naturalization do, that every observed object is automatically natural. But the proponents of these arguments may still question this: Is this notion of non-reducibility really successful in preventing the automatic naturalization of any proposed phenomenon? We accept that supernaturalists may have alternatives to proven natural phenomena which remain non-natural but, should we observe those alternatives, it seems that they should merely be naturalized as well. Assuming that supernatural alternatives will remain is simply assuming the falsifiability of ontological naturalism. But opponents of the Provisory view will find that assumption problematic. Ontological naturalism falsifiability must be justified, not merely assumed. At least, this is what the Provisory naturalist says in response to the Essentialist regarding the *un*falsifiability of ontological naturalism. The Provisory methodological naturalist does not allow the Essentialist to merely *assume* unfalsifiable naturalism. Thus, to hold that it is okay for Provisory naturalists to make their assumption but not okay for Essential naturalists to do so is hypocritical.

Crucially, here is where the Essentialist and Provisory views differ and the acceptance of one over the other has more to do with the acceptance of the arguments (many of which are pragmatic) detailed in the previous sections and chapters than it has to do with any flaw in the Essential methodological naturalist's reasoning. The Provisory methodological naturalist accepts that science could indeed naturalize every proposed supernatural phenomenon which supernaturalists propose. However, while the Essentialist holds that objects that are *truly* supernatural are not observable via science, the Provisory methodological naturalist holds that, at least theoretically, they are.

The question then becomes one of differentiation. If the Essential methodological naturalist is going to observe a purported supernatural phenomenon and label it "natural" while the Provisory methodological naturalist is going to observe the exact same

phenomenon and label it "supernatural", what exactly separates the two classifications beyond semantics? When, in other words, is the Provisory methodological naturalist justified in labeling a phenomenon "supernatural" and, thus, falsifying ontological naturalism? This question is a very difficult one to answer. Any attempt to develop a strategy for distinguishing between natural and supernatural discoveries appears to run into problems in much the same way attempts to demarcate between science and non-science do.[5] Because of this, the Essential methodological naturalist might accuse the Provisory methodological naturalist of not having a satisfactory answer to this problem. The Essentialist might say that the Provisory view is untenable because there is no effective method for distinguishing between natural and supernatural objects. Ontological naturalism cannot be falsifiable if there is no standard criterion which we can use to prove the existence of objects which would falsify it. I will address this problem for Provisory Methodological Naturalism, the problem of a lack of distinguishing criterion for natural and supernatural objects, in the next chapter.

4.4 Conclusion

The Inductive Form of the Automatic Naturalization Argument holds that we are justified in always assuming all discovered objects to be natural objects since, historically, all discovered objects have been natural objects. However, the inductive reasoning utilized by the Inductive Form argument leads to premises which contradict the view of the only group who can utilize it. Essential methodological naturalists require certainty which induction cannot provide. Additionally, we can critique the reductionism of the Inductive Form and standard Argument from Automatic Naturalization by asserting the possibility of non-natural alternatives to "naturalized" supernatural objects.

However, opponents of Provisory Methodological Naturalism have another argument available to them. We have yet to provide a method which would allow us to conclusively prove the existence of the supernatural. Specifically, we have yet to provide a criterion for distinguishing supernatural from natural objects. Without such a criterion, it is arguable that Provisory Methodological Naturalism is untenable.

[5] For more on this demarcation problem see (Laudan, 1983; Pigliucci, 2013a; Pigliucci and Boudry, 2013; Popper, 1985).

5. Defending Provisory Methodological Naturalism: The Distinction Criteria Problem

5.1 Introduction

The arguments against Provisory Methodological Naturalism introduced thus far have failed to convince. For example, the Argument from Automatic Naturalization requires the unfalsifiability of ontological naturalism which is untenable. Additionally, the Inductive Form of the Argument from Automatic Naturalization fails because the inductive reasoning of the Inductive Form clashes with the anti-Provisory view. Methodological naturalists who oppose Provisory Methodological Naturalism require a certainty which the Inductive Form cannot provide.

At this point, it might be beneficial to consider the burden of proof in relation to methodological naturalism. To defend Provisory Methodological Naturalism, we are not required to prove that (A) science has observed the supernatural. Provisory Methodological Naturalism does not require ontological supernaturalism. But nor do we *only* need to show that (B) the supernatural is metaphysically possible. Rather, along with (B), we need to show that (C) it is epistemically possible that science will observe the supernatural. If science can, in principle, evaluate supernatural objects, then the Provisory view is a viable option. The Provisory view requires the assumption of (B) and (C) even though what the Provisory methodological naturalist assumes is possible, namely the falsifiability of ontological naturalism, would itself require (A) and (B). To put it another way, the possibility of observing of the supernatural (i.e., the Provisory view) requires the metaphysical/ontological assumption of (B) and the epistemological assumption in (C). But the actual observance of the supernatural entails (A).[1, 2]

So, if we can show that we must allow for the above metaphysical and epistemic possibilities of the supernatural (and assuming some form of methodological naturalism is true), then Provisory Methodological Naturalism is true. However, in allowing the possibility of observable non-natural objects, the Provisory methodological naturalist faces some tough questions. As noted, we have always heralded the discovery of new forms of

[1] Proving (A) would itself involve other requirements. For example, the requirement that any supernatural cause of a natural effect must be the necessary cause of that effect and not simply a sufficient one.
[2] Of course, if the supernatural were actualized (A), then (B)and (C) would also be the case. While (B) and (C) do not entail (A), (A) obviously entails (B) and (C).

matter as natural discoveries. The confirmation of the existence of the Higgs Boson, for example, saw this new particle being accepted into our "natural ontology set" or, the set of existing natural things. Likewise, allowing science to observe supernatural objects implies that their discovery is, at least theoretically, possible. But how do we justify this difference between the two discoveries? What *exactly* is the difference between natural and supernatural objects? Is there an underlying reason why we must continue to allow for a category of supernatural things and is there a method that allows us to consistently distinguish between natural things and supernatural things? With regards to these last two questions, I addressed the former in my responses to Essential Methodological Naturalism and to the Inductive Form of the Argument from Automatic Naturalization: We must continue to allow for a category of supernatural things because we cannot hold ontological naturalism to be unfalsifiable in our world. In this chapter, I will introduce a challenge for Provisory Methodological Naturalism which involves the latter question. This challenge is based on an argument for the claim that the Provisory view cannot be adopted because the falsifiability it advocates is untenable. It is untenable because we could never reliably distinguish between the natural and the supernatural.

Another way to put this is to say that we cannot adequately *classify* supernatural objects as such. "An apple belongs to the category of 'red things'" is an example of classification. We can note the characteristics of apples which allows them to fit into the category of red things, namely their property of being red. And while there may be some vagueness when it comes to the classification of certain objects and categories (Is Tom tall or average height?), when the object's characteristics are clear and the parameters of the category are obvious, then classifications are often easily made. The problem with placing things into the "supernatural" category, as opposed to the "red things" category, is that it is not immediately obvious which properties of an object would lead it to be classified as such. The characteristics of ostensibly supernatural objects and the parameters of the "supernatural" category itself are entirely unclear. What, exactly, are the characteristics of a ghost that determine it to be supernatural? Or, what are the parameters of "supernatural objects" which allow us to place ghosts within that category?[3] If we are unsure as to what qualities make a ghost a supernatural object, then it does not seem that we are justified in classifying it as such. We might just as well classify it as a natural object. And if we cannot

[3] Saying that supernatural objects are simply non-natural or are the opposite of natural objects offers no solution. Unless we simply assume that every object is natural, a similar question to the one regarding the parameters of supernatural objects might be posed with regards to the parameters of natural objects.

distinguish between natural and supernatural things, then the first benefit which extols the falsifiability of Provisory Methodological Naturalism is proven false. We could never falsify ontological naturalism or prove without a doubt that supernatural things exist if we cannot distinguish supernatural things. We might call this argument the Argument from No Distinction Criterion.

The Argument from No Distinction Criterion has the potential to be a powerful response to Provisory naturalism. However, it should be noted that only Essential methodological naturalists can use the Argument without contradicting themselves. Methodological supernaturalists who disagree with Provisory Methodological Naturalism cannot argue for this lack of distinction to disprove the Provisory view. This is because methodological supernaturalists must be ontological supernaturalists. Again, methodological supernaturalists already believe that supernatural things exist. And existing supernatural things are, necessarily, distinct from natural things. Because they implicitly rely on a distinction between the natural and the supernatural, supernaturalists obviously cannot employ a response which says there is no such distinction. At the same time, Provisory Methodological Naturalists will not want to utilize an argument that attempts to disprove their own view. Therefore, the only group able to use the Argument from No Distinction Criterion is the Essentialists.

In the next section, Section 5.2, I will present the structure of the Argument from No Distinction Criterion against Provisory Methodological Naturalism. In that section, I will briefly discuss what separates the Argument from No Distinction Criterion from previous arguments, including the Inductive Form examined in the previous chapter. Following this, I will present four responses to this argument. The first response, which I will introduce in Section 5.3.1, holds that no distinction criterion is necessary. We can maintain Provisory Methodological Naturalism without distinguishing between natural and supernatural things. What is important is determining which objects exist, not whether said objects are natural or supernatural. This response, I believe, fails. The second response, which I will introduce in Section 5.3.2, holds that, while no *definitive* distinction criterion is needed, some sort of distinction between natural and supernatural things is required. In place of a universal criterion, we should have one that is subjective or, left to the individual. However, this response also fails. The third response, which I discuss in Section 5.3.3, assumes that a definitive, universal distinction criterion is necessary and, thus, cannot be subjective. This response will outline a universal method of distinguishing which I call the Similarity

Criterion. After introducing the Similarity Criterion in this response, I will then present and address two anticipated problems with its implementation in Sections 5.4.1 and 5.4.2. I argue that, while the Similarity Criterion has merits, the difficult problems it faces are insurmountable. Finally, I will lay out my fourth response in Section 5.5. Like the first response, this counter-argument holds that no distinction criterion is necessary. However, unlike that response, it also holds that it is still important to distinguish between natural and supernatural things. I conclude that it is this fourth approach, a pragmatic response to the Argument from No Distinction Criterion, that is successful.

5.2 The Argument from No Distinction Criterion

The Argument from No Distinction Criterion holds the following: It is accepted as fact that many phenomena which were at one time commonly believed to be supernatural, such as lightning, were later determined to be natural. Additionally, the opposite has never been the case. Something previously thought to be natural has never proven to be supernatural. We have no verifiable experience with supernatural objects and, therefore, no reliable way to differentiate the supernatural from the natural. So, not only do we lack the necessary experience with supernatural objects to be able to classify newly discovered objects as such, but any object so classified may, like lightning, eventually prove to be natural. Historically, at least, that has always proven to be the case. If we cannot reliably distinguish the supernatural, then we cannot say, as the Provisory methodological naturalist wants to, that the supernatural is discoverable by science. And if the supernatural is not discoverable by science, then ontological naturalism is not falsifiable. Thus, Provisory Methodological Naturalism is untenable. We might formulate a simple version of the Argument like this:

> (1) If there is no universal distinction criterion by which to distinguish supernatural things from natural things, then Provisory Methodological Naturalism is false.
>
> (2) There is no universal distinction criterion by which to distinguish supernatural things from natural things.
>
> (3) Therefore, Provisory Methodological Naturalism is false.

In a discussion of ideas related to this Argument from No Distinction Criterion, Yonatan I. Fishman writes, “Historically, the boundary between what has been defined as

‘natural’ or ‘supernatural’ has shifted with scientific progress. Disease, lightning, meteorites, and comets were all considered ‘supernatural’ phenomena until they were given law-like ‘natural’ explanations consistent with other empirically supported ‘natural’ theories” (Fishman, 2007, p. 824). Methodological naturalists who oppose the Provisory view will say that natural explanations will always be favored in this way. But even Provisory methodological naturalists (at least those who are also ontological naturalists) will need to admit that we have no experience with supernatural objects. As Fishman notes, “supernatural” phenomena with which we have had direct contact have always been incorrectly classified natural phenomena. As a result, we appear to have no reliable way to recognize these objects.

The Inductive Form Argument against Provisory Methodological Naturalism introduced in the previous chapter also relied on the fact that scientifically verified supernatural phenomena are always recognized as natural phenomena. In that argument, this premise leads to the inductive conclusion that no supernatural phenomenon will ever be discovered by science. However, the Argument from No Distinction Criterion is not as overtly presumptuous as the Inductive Form. It does not hold that, based solely on a review of past experience, we are justified in thinking that every supernatural phenomenon will turn out to be natural. Instead, it states that, if we were to allow for the validity of truly supernatural objects, we would have no method of telling the difference between these non-natural objects and natural objects. At the same time, the Argument from No Distinction Criterion is just as sweeping as the Inductive Form. The proponent of the Argument from No Distinction Criterion holds that this lack of any definitive distinguishing criterion is enough to counter the Provisory claim that evidence can be presented to falsify ontological naturalism. It is enough, in other words, to invalidate Provisory Methodological Naturalism.

It may be important to point out here that this No Distinction argument against Provisory Methodological Naturalism is not asserting that the Provisory view merely lacks a way to observe supernatural objects. Although the Essential Methodological Naturalist opponent of the Provisory view would indeed hold that science cannot record or observe the truly supernatural, this is not what the Argument from No Distinction Criterion is claiming. Instead, it is arguing that science cannot distinguish the supernatural. There is a difference between saying that science cannot observe the supernatural and saying that science cannot distinguish the supernatural. Distinguishing supernatural from natural things involves the *verification* of supernatural objects. Even allowing the possibility that science could devise

a valid method to observe the supernatural, it would still face problems in the distinguishing, or verification stage according to the argument.

5.3. Responses to the Argument from No Distinction Criterion

In the following sections, I will look at some responses to the argument that Provisory Methodological Naturalism is false because we cannot adequately distinguish between natural and supernatural objects. But before considering these responses, I would like to briefly examine the idea that the argument fails because we are justified in categorizing an object as natural or supernatural even without knowing the exact reason why the object fits into the category. In other words, we are justified in calling a ghost a supernatural object even if we cannot determine the properties which make it such. We might consider the following example: As children, we know that an apple belongs in the category of red-colored things even though we likely do not know the details of why that is so. We are ignorant of such things as the properties of light and the mechanics of vision. Similarly, we would be justified in classifying ghosts as supernatural even though we do not know, specifically, which properties of the ghost make it that way.

There may be several problems with this analogy but one large problem is that it fails to recognize that prior experience is the basis of our knowledge of things like the color red. We know that an apple should be classified as a red-colored thing because we have prior experiences of other red-colored objects. But supernatural things are different. We have no prior experiences with supernatural objects and, therefore, no basis for comparison. This is the crux of the Distinction Problem. We have no history of supernatural objects. Thus, unlike natural things like apples, we cannot immediately know that any supernatural object might be classified as such.

5.3.1 Response to the Argument from No Distinction Criterion: No Distinction Needed

Some have defended Provisory Methodological Naturalism and the idea that science can test (observe *and* verify) supernatural objects while also arguing that distinguishing between the natural and the supernatural is useless or unimportant. To these individuals, what is important is not determining which objects are supernatural. Instead, the important thing is determining which objects exist and which do not. If this argument is sound, this would provide a strong response to the Argument from No Distinction Criterion which holds that

being able to determine natural from supernatural is necessary for Provisory Methodological Naturalism to work. Yonatan Fishman provides an example of this sort of dismissal in his paper entitled 'Can Science Test Supernatural Worldviews?' (Fishman, 2007). Fishman's primary intention in that paper is to introduce a process for testing and determining the validity of supernatural claims.[4] However, along the way, he also makes the claim, which I will soon discuss, that the natural/supernatural distinction is inconsequential.

Fishman never labels himself a Provisory methodological naturalist. However, it seems likely that he would identify as such. Fishman, like all Provisory naturalists, endorses methodological naturalism and explicitly refutes the anti-Provisory view that science cannot evaluate supernatural objects. For example, he says

> Are claims involving 'supernatural' phenomena inherently untestable and therefore outside the province of science? The present article argues that this is not the case. Science does not presuppose Naturalism and supernatural claims are amenable in principle to scientific evaluation (Fishman, 2007, p. 814).

Fishman, like BBB and myself, also argues that restricting science to the natural realm merely corroborates the Creationist claim that science is problematically biased.

> To exclude, a priori, the supernatural would validate the complaint voiced by some ID adherents and other creationists that science is dogmatically committed to Naturalism and thus opposed in principle to considering supernatural explanations (Fishman, 2007, p. 814).

The question then is this: In insisting that the supernatural be amenable to scientific evaluation are we then *required* to distinguish between natural and supernatural things? Must the Provisory methodological naturalist really devise a distinction criterion? Fishman does not think so. Late in the article, he says the following:

> [T]he present author maintains that demarcating 'science' from 'pseudoscience' or 'natural' from 'supernatural' is not only problematic but

[4] Fishman's process utilizes a combination of Bayes' theory and three established methods of scientifically evaluating the truth of claims to determine the legitimacy of purported supernatural phenomena The three methods are, "(1) by consideration of the prior probability of a claim being true, (2) by "looking and seeing" (i.e. by consideration of the evidence for or against a claim), and (3) by consideration of plausible alternative explanations for the evidence" (Fishman, 2007, p. 816).

> unnecessary. The crucial question is not, *Is it science?* or *Is it supernatural?*, but rather, *Is there any good reason to believe that claim X is true?* Whether the entities or phenomena posited by claim X are defined as 'natural' or 'supernatural' is irrelevant to the scientific status of the claim. If the fundamental aim of science is the pursuit of truth—to uncover, to the extent that humans are capable, the nature of reality—then science should go wherever the evidence leads. If the evidence were to strongly suggest the existence of supernatural phenomena, then so be it (Fishman, 2007, p. 830).

Fishman asserts that distinguishing between the natural and the supernatural is irrelevant. To him, the focus should be on the truth of the claim which, utilizing his own approach, science can indeed determine. If we assume Fishman's view, then we must hold that our previous emphasis on ontological naturalism falsification is simply misguided. It does not matter whether we discover a *supernatural* ghost but only whether we discover a ghost. It does not matter that we discover a new supernatural object but only that we discover a new object. We should be Provisory naturalists in the sense that we should assume that science can evaluate supernatural things. However, we do not need to worry about the falsification of ontological naturalism at all. Regarding discovered objects, what matters is existence and not classification as natural or supernatural.[5]

If one assumes Fishman's view, then talk of *defending* Provisory Methodological Naturalism by defending the falsifiability of ontological naturalism will seem wrong-headed. Fishman would likely argue that Provisory Methodological Naturalism should not be concerned with distinguishing between natural and supernatural things to show that ontological naturalism may possibly be proven false. Instead, Provisory Methodological Naturalism should only hold that *methodological* naturalism is falsifiable (and, therefore, should be only provisionally accepted). It is the thesis that science is the best and only method for discovering reality that should be falsifiable. Ontological naturalism should not come into play.

However, this does not seem reasonable. We cannot pull apart methodological naturalism and ontological naturalism in this way. The two forms of naturalism are inseparable. We know this for a couple of reasons. First, and perhaps most controversially,

[5] One can perhaps *distinguish* a thing without *classifying* or *labeling* that thing. But here I will assume that when we distinguish natural from supernatural we also classify those objects as either one or the other.

science has never suggested the existence of objects that would be deemed supernatural. Thus, accepting scientific findings as the *best and only* picture of reality (methodological naturalism) should mean accepting ontological naturalism. A provisional acceptance of the thesis that science is the best and only method for discovering reality should require the provisional acceptance of the additional thesis that only natural things exist. This is true, despite the assertions of the atheist parapsychologist (methodological naturalist/ontological supernaturalist). Recall that she holds that science proves the existence of supernatural things. While this view is coherent, it is not correct.

Second, should supernatural objects exist, science (or at least natural science) could not be the best and only possible method. There would need to exist methods other than science which tell us about these non-natural objects. In other words, should ontological naturalism be proven false, then methodological naturalism would necessarily be proven false as well. And we could say something similar if supernatural *methods* are ever proven effective. Ontological naturalism would necessarily be false (1.3). Additionally, because the two types of naturalism cannot be separated, Provisory Methodological Naturalism must recognize both methodological and ontological naturalism as falsifiable (3.3). If it is possible that the thesis that science is the best method for discovering reality is false, then it must also be possible that the thesis that only natural things exist is false.

Additionally, Fishman's assertion that the focus should be on the truth of the claim, which science ultimately determines, seems problematic if not contradictory. How is one to follow his suggestion and determine if the evidence "suggests the existence of supernatural phenomena" if one cannot define said phenomena as supernatural? We can imagine evidence which would "strongly suggest" the existence of ghosts, for example. Would Fishman hold that such phenomena should still be thought of as "supernatural" based on said evidence? This may be unlikely given that Fishman knows we can also hypothesize discoverable phenomena which have a nature like lightning. That is, we can imagine phenomena which appears supernatural but which is ultimately explainable naturally. It would be wrong to simply label *this* type of phenomena supernatural. Likewise, it would be wrong to label everything discovered as natural, for this would contradict Provisory Methodological Naturalism.

But perhaps Fishman would persist and hold that labels such as "natural" and "supernatural" should be dropped entirely. Again, the only thing that matters, implied in the

quote above, is what exists or does not exist. But this approach also leads to problems. If Fishman indeed holds this view, then, although he may identify himself as a Provisory methodological naturalist, he could not reasonably identify himself as either an ontological naturalist or ontological supernaturalist. Fishman would need to hold something of an "agnostic" view with respect to the distinction between naturalism and supernaturalism in ontology. In other words, he would need to hold that we are not justified in thinking either ontological naturalism or ontological supernaturalism to be true.[6] Those views are simply meaningless without the use of the above labels. If objects can only be classified as "existing" or "non-existing" rather than natural or supernatural, then there obviously can be no classifying and differentiating between the ontologies which include supernatural things and those which do not.[7] In short, the dropping of the natural/supernatural labels in favor of existence claims requires the immediate forced acceptance of an agnostic view of ontology. But that is too big a price to pay. Few will want to abandon their ontological position. Besides that, nothing in Fishman's writing suggests a lack of commitment to naturalism or supernaturalism. So, it seems possible that he too would avoid this approach.

That said, there is no denying that Fishman sees the classification of objects as existent or non-existent as more valuable than classifying them as natural or supernatural. If he does consider himself to be an ontological naturalist, then he does not seem to connect the implications for his ontological naturalism to his methodological approach. By focusing only on the existence of objects at the expense of distinguishing the natural from the supernatural, Fishman discards the core criterion of falsifiability inherent in Provisory Methodological Naturalism. Again, to hold that ontological naturalism is falsifiable, we need to be able to distinguish objects or phenomena which will falsify it. Granted, Fishman does not go so far as to explicitly suggest that ontological naturalism is unfalsifiable (nor should he as a Provisory methodological naturalist). However, it is a real question as to what, since he believes that science can test for the existence of the supernatural, he thinks the status of ontological naturalism is. Does Fishman hold it to be falsifiable or not? Perhaps

[6] I take the term "agnostic" here to mean something like the "positive agnosticism" of an individual who believes that we *cannot* know whether a proposition such as "God exists" is true. Fishman's view requires that we cannot know whether naturalism or supernaturalism is correct. I do not take the term to mean a kind of "negative agnosticism" in which an individual simply does not know whether the proposition is true, but thinks it possible that we could know. For more on positive and negative agnosticism, see (Scriven, 2003).
[7] An alternative to ontological agnosticism would be ontological nihilism, or the belief that neither ontological naturalism or supernaturalism are true. But this is an indefensible position. Either natural things (and *only* natural things) exist or supernatural things as well as natural things exist. We cannot say that none of these things exist.

he merely holds that, should an apparently supernatural phenomenon be discovered, then we would be justified in abandoning ontological naturalism. If said phenomenon were later proven to be natural, like lightning, then we might reclaim it. But if this is the case, I would still hold that his dismissal of the distinction question is wholly unwarranted. This is because the transition of the phenomenon from supernatural to natural *just is* distinguishing between natural and supernatural things.

In this section, I have assumed Fishman's position and have been attempting to provide solid answers to how it is, exactly, that we know labeling objects as natural or supernatural does not matter (and that only existence does). The reasoning behind Fishman's position is not easy to determine because Fishman does not formally defend this view. One can only speculate as to his thinking. For example, maybe Fishman would say that classifying objects as natural or supernatural is unimportant because classifying does not help us determine ontology. It seems reasonable to assume that classification should help us confirm an ontological position. The discovery of a "supernatural" ghost, for example, should prove the truth of ontological supernaturalism. But, Fishman might say, we cannot assume that classification will help do this. Consider again the phenomenon of lightning. Upon discovery, lightning was classified by many as a supernatural object. But the discovery of lightning and its subsequent classification obviously did not confirm ontological supernaturalism. If people became ontological supernaturalists based on the existence of lightning, they were simply in error. Because classification cannot help us confirm an ontological position, classification of things as natural and supernatural is unimportant.

Fishman's opponent might object here and say that this is to be expected given that the object was mistakenly classified in the first place. She might say that what is important is only that *correctly* classified objects confirm ontology. Incorrectly classified objects obviously cannot confirm an ontological naturalism or supernaturalism but correctly classified objects can. And because correct classification confirms ontology, correct classification is indeed important. However, Fishman might still have a way to respond. He can argue that even classifications we assume are correct ("trees are natural", for example) cannot always confirm ontology. This is most obvious in the case of natural things. Labeling an object as "natural" can never prove the truth of ontological naturalism. It always remains an open possibility that supernatural things exist in the natural world. Therefore, in this case, classification does not help us confirm the corresponding ontological position (ontological

naturalism). And, again, because classifying an object as "natural" or "supernatural" has no conclusive effect on the theses that only natural things exist and that supernatural things exist, labeling an object "natural" or "supernatural" is irrelevant.

Naturalists would love to say that the exclusivity of natural objects confirms ontological naturalism. However, we cannot assume this to be the case. As previously noted, supernatural objects may one day be discovered as well. That being said, while the exclusive identification of natural objects does not *confirm* ontological naturalism, the exclusivity or natural objects does at least strongly *support* ontological naturalism. The fact that, thus far, science has only discovered natural objects and has yet to uncover ghosts or ESP or other phenomena generally classified as supernatural does provide strong support for the idea that ontological naturalism is true. And this strong support of ontological naturalism is enough to prove that the classification of natural things is indeed useful. Thus, Fishman would be wrong to hold that classification is not useful simply because it does not confirm an ontological position.

From all of this we can conclude that, not only is the refusal to distinguish between natural and supernatural objects impractical generally for the above reasons, such a refusal is surely problematic for the Provisory methodological naturalist who requires the falsifiability of ontological naturalism. We must be able to distinguish supernatural objects if we are to hold ontological naturalism to be falsifiable. Therefore, this response to the Argument from No Distinction Criterion fails. We are not justified in dismissing the idea of distinction entirely in favor of focusing on existence. While it may be the case (as I will argue with my fourth response) that no distinction criterion is necessary, we still need to be able to classify objects as natural and supernatural rather than simply existent or non-existent.

5.3.2 Response to the Argument from No Distinction Criterion: Subjective Distinction

Our first response to the Argument from No Distinction Criteria has failed. Distinguishing between natural and supernatural things is not a pointless endeavor. We might now consider taking the opposite approach. Rather than assume that distinction does not matter, we might assume that it does. The second approach I will examine affirms the existence of the distinction between the natural and the supernatural and holds it to be relevant. But this approach also suggests that the criterion for distinguishing is entirely subjective.

Again, contrary to the problematic first response, this response at least recognizes the difference between natural and supernatural things. However, it also holds that defining a *universal* criterion for distinguishing between the two categories is unnecessary. According to this argument, what is important is only *that* we embrace the falsifiability of ontological naturalism. *How* we embrace it (or, more specifically, that the criterion for falsifiability is definitive or universal) is not important. The Essentialist opponent of Provisory Methodological Naturalism argues that, without a definitive criterion to know natural from supernatural, we cannot know when to abandon our ontological naturalism. But we can respond to this by saying that, if the naturalist at least recognizes ontological naturalism to be falsifiable, the decision about when to consider it falsified can simply be left up to the individual. The individual naturalist can know, personally, when their ontological naturalism has been falsified and needs to be abandoned. A standard criterion, then, is not required. In other words, while there is no objective distinction criterion, we can instead have individual or, subjective distinction criteria.

It is important to note that this view must only be applied to cases where a reasonable observer might question whether a discovered object or phenomenon is supernatural. So, for example, some people assume telepathy to be natural while others hold it to be supernatural. A reasonable observer might question the classification of telepathy. The proponent of subjective distinction would then hold that it would be up to the individual naturalist to determine whether the discovery of telepathy would qualify as a discovery of a supernatural object. Subjective distinction should not be applied indiscriminately. A naturalist who subjectively holds that, say, electrons are supernatural entities would not be operating in the true spirit of subjective distinction. A reasonable observer would not question whether electrons are supernatural.

Subjective distinction may be necessary if an objective criterion to distinguish the natural and supernatural is impossible to determine. And, although I will later propose such an objective distinction criterion, a good case can also be made that objectively distinguishing the supernatural from the natural cannot be done. One person who believes this is Richard Carrier. He writes,

> Consider psi, the undefined power which would explain ESP and telekinesis, among other things. We would all readily call that supernatural. But why? If there was a lawful, regular feature of the universe which allowed ESP and

> telekinesis to exist, then wouldn't psi be natural, not supernatural? What makes something supernatural anyway? We can levitate and move an entire train with magnetism, and transmit thoughts by radio, two powers that the ancients of Paul's day would certainly have called supernatural. Even God could be entirely natural, for if he existed he would be a regular feature of the universe, every bit as much as you or I. The attempt to draw a line between God and nature will always be somewhat arbitrary (Carrier, 1999).

Given the arbitrary nature of distinguishing natural from supernatural things, it is not a stretch to hold that no objective criterion for distinguishing exists. But that does not mean that no criterion exists, period. Rather, the falsification of ontological naturalism is a subjective determination. (It is important to note that Carrier's use of the word "arbitrary", implies such subjectivity. It is not being used here, as it sometimes is, to imply randomness.)

Making the criterion subjective answers the Argument from No Distinction Criterion but it also does something else. It prevents the indiscriminate elimination of the supernatural as a category. In other words, it prevents making ontological naturalism unfalsifiable. Prior to the above statement, Carrier argues against what he calls the "naturalistic fallacy". Essentially, this is his term for the unjustifiable automatic naturalization of the supernatural. Like the Provisory methodological naturalist (perhaps Carrier would identify as such), Carrier believes that we are not warranted in dismissing without cause the scientific evaluation of supernatural objects. It is wrong to commit this naturalistic fallacy *because* the category of supernatural things is arbitrary or, subjective. We are never justified in dismissing any arbitrary categories, especially not without reason. For in doing so we "pointlessly eliminate possible theories", according to Carrier. And these theories, he argues, may turn out to be correct. Therefore, automatic naturalization, or the holding of ontological naturalism to be implacable and unfalsifiable, is groundless if the supernatural is indeed subjective.

But now we face a couple of problems. First, some might argue that there is little difference between the subjective naturalization of supernatural objects and the automatic naturalization of those objects. It seems wholly possible that the Provisory methodological naturalist could *subjectively* decide to naturalize all discovered objects, thereby effectively naturalizing objects automatically. In other words, the outcome of subjective naturalization and automatic naturalization could be identical. The Provisory methodological naturalist

might subjectively naturalize *all* supernatural objects just as the Essential naturalist automatically does. Because automatic naturalization contradicts Provisory Methodological Naturalism, the Provisory methodological naturalist will not be able to subjectively naturalize objects if doing so means she is merely automatically naturalizing them.

We might attempt to answer this by saying that, while the *outcomes* may be identical, the *processes* of arbitrary naturalization and automatic naturalization are different. Automatic naturalization necessarily holds true for all discovered objects while arbitrary naturalization is done only when subjectively warranted. Essential naturalists necessarily naturalize every object that science discovers. But Provisory naturalists do not recognize this necessity. This differing motivation for naturalization is sufficient to make the two forms of naturalizing different.

However, consider this claim from Carrier which immediately follows the above passage:

> Nature *is* what exists: we look at the world, learn how it works, discover its inhabitants and rules and call that *nature*. Consequently, God, miracles, psionics, angels, ghosts, flying saucers, would all be a part of nature if they existed (Carrier, 1999).

The above seems *very* similar to the position of the anti-Provisory naturalist who automatically naturalizes. Additionally, Carrier's description in the first passage does not appear to be much different from the process of the Essential methodological naturalist who automatically naturalizes: According to Carrier, we observe psi and, as a result, deem it a part of nature. On the face of it, this appears to be automatic naturalization. But we also just noted that Carrier recognizes automatic naturalization as a fallacy. So how do we reconcile this apparent inconsistency? How can Carrier seemingly accept automatic naturalization and recognize it as problematic at the same time?

The confusion here stems from Carrier's use of the word "nature" and what that word is thought to denote. In the above passage Carrier uses "nature" to denote the whole of reality or, everything that exists in our world. But "nature" has another connotation. It can be used to refer to the natural or, the totality of all natural things (and nothing more). Under this usage, to infer that a supernatural object might exist in nature is incoherent. No supernatural object can exist in a set consisting of all and only natural things. But under Carrier's usage, it makes sense. Carrier is not suggesting that nature only consists of natural

things. Carrier's "nature" or, the whole of reality, can include supernatural objects. In other words, it is possible for Carrier's "natural" to include the supernatural. I believe it is important to make this distinction and that Provisory methodological naturalists should take care in their use of this term. They should not hold that nature is everything that exists in our world *and* that nature refers to the totality of all natural things and nothing more. This is because Provisory naturalists must believe that the supernatural could possibly exist in our reality.

In his discussion above, Carrier makes his own suggestion about how we can separate nature from the natural. While we can consider nature to be "everything that exists", we can hold natural things to be *"lawful, regular features of the universe"*. Non-natural or supernatural things may be a part of Carrier's nature if they exist. However, they would not be lawful, regular features of the universe. So, if an object fails to be a lawful, regular feature, it would not be natural. At the same time, things which are thought to be supernatural, like lightning, but prove to be lawful, regular features are in fact natural things. I believe this is a good general approach to distinguishing the natural from the supernatural. In fact, Carrier's position here mirrors the approach I will soon defend in Section 5.5. Unfortunately, it is not perfect. For one thing, it is unable to answer the question of how we classify a newly discovered object *now*, while we wait to determine if it is a lawful, regular feature.

So far in this section, I have introduced a few objections to the subjective distinction criterion but have provided answers to each. I will close by offering two final problems for a subjective criterion which are more conclusive. I argue that these problems constitute deal-breakers for a subjective distinction criterion. The first problem involves the use of subjectivity for something as important as the falsification of ontological naturalism. It is too easy to move from the notion that each individual naturalist subjectively decides which evidence is grounds for the falsification of ontological naturalism to the idea that each Provisory naturalist holds different standards for falsification. Or, to employ a commonly-used term, to move to the idea that Provisory naturalists accept varying *defeaters* for ontological naturalism. What serves as evidence to defeat or falsify ontological naturalism for one naturalist may not be satisfactory evidence to another naturalist. As such, do we really want to accept subjective distinction/falsification and rely on personal taste in deciding something as significant as the classification of natural and supernatural things? That does not seem reasonable. The method that would be used to bring about the

falsification of ontological naturalism, the scientific method, is thought to be the epitome of objectivity. However, if the actual decision to falsify naturalism is a subjective one, this objectivity is negated.

Second, and along similar lines, if we hold the falsification of ontological naturalism to be a personal decision, then we must also say that the truth of ontological naturalism itself is a matter of subjective judgment. A subjective distinction criterion holds that the correct ontology is whatever is true for the individual naturalist. While we want to say that ontological naturalism may be falsified, we do not want to go so far as to say that, should a single Provisory methodological naturalist decide that ontological supernaturalism is true, that this indeed would be the case. That is too big of a leap to make. Therefore, Provisory methodological naturalists who are also ontological naturalists will likely want to avoid a subjective distinction criterion.

In part because of the above reasons, a compelling case can be made for the claim that Provisory Methodological Naturalism requires a non-arbitrary criterion for classifying discovered objects as either natural or supernatural. If we allow for both natural and supernatural sets in our world, then we should have a non-arbitrary method for determining the members of those sets. In the next section, I will take up the view that a non-arbitrary, universal distinction criterion is warranted and propose such a criterion of my own.

5.3.3 Response to the Argument from No Distinction Criterion: The Similarity Criterion

Again, the Argument from No Distinction Criterion formulated is:

> (1) If there is no universal distinction criterion by which to distinguish supernatural things from natural things, then Provisory Methodological Naturalism is false.
>
> (2) There is no universal distinction criterion by which to distinguish supernatural things from natural things.
>
> (3) Therefore, Provisory Methodological Naturalism is false.

In the previous section, I challenged (1) by arguing for a subjective distinction criterion. There I held that Provisory methodological naturalists might subjectively determine when

supernatural things exist. I will now offer a response to the Argument from No Distinction Criterion which addresses (2). This response attempts to answer the question of how we know when ontological naturalism is falsified by taking into consideration current conceptions of supernatural phenomena and how closely the hypothetical observed phenomena resemble them. I call this principle the Similarity Criterion.

The Similarity Criterion is quite simple. Everyone holds conceptions of paradigmatic examples of supernatural objects. The Similarity Criterion has it that whether a discovered object is supernatural can be determined by noting the similarity between the object and these examples. Under the Similarity Criterion, we might say that the closer an observed phenomenon resembles our current concept of a supernatural phenomenon, the more likely it is to be supernatural.[8] We should note that the Similarity Criterion is not an argument. Instead, it is a principle or guideline for the falsification of ontological naturalism. That said, if it is an acceptable principle, then premise (2) above is false and the Argument from No Distinction Criterion against Provisory Methodological Naturalism fails.

Let us consider three possible scenarios:

Scenario 1 (Ghosts): Scientists isolate and conclusively prove the existence of the spectral remains of a deceased human being. These remains are visible, roughly human-shaped and able to communicate and interact with the physical world.

Scenario 2 (Energy): Scientists isolate and conclusively prove the existence of a new form of energy, attached in some way to human beings, and which operates after their deaths. This energy differs physically from the phenomenon in Scenario 1 in that, unlike the ghosts, it is invisible and temporary. Its behavior is different from the ghosts' in that it is completely non-responsive to stimuli from the physical world. Also, it differs essentially from the ghosts in that it is not sentient and shows little of the other characteristics which living entities normally have. However, it does directly affect the physical world and can serve as

[8] Daniel Stoljar suggests something similar when discussing conceptions of physicalism. His *object-based conception* holds that a physical property is one which is "required by a complete account of the intrinsic nature of paradigmatic physical objects and their constituents…" (Stoljar, 2001, p. 257). A chair is a paradigmatic physical object, for example. Therefore, the property of being a chair is a physical property. It is the intrinsic connection with paradigmatic physical objects that makes a property physical. We might want to similarly say that, according to the Similarity Criterion, an intrinsic connection with paradigmatic supernatural concepts makes a discovered object supernatural. But here we see a significant difference between the two ideas. Paradigmatic *physical objects* are different sorts of things than paradigmatic *concepts*. Stoljar's conception of physicalism depends on paradigmatic objects which, idealist arguments aside, exist in the world. The Similarity Criterion, on the other hand, relies on paradigmatic concepts which exist only in the mind.

a possible explanation for purported cases of supernatural activity including poltergeists, hauntings, etc.

Scenario 3 (Hallucinations): Scientists discover that, like infrasound (4.2), certain frequencies of the electromagnetic spectrum which operate just outside of the visible range (say, in the near ultraviolet or near infrared range) can have an unconscious effect on vision. These effects include hallucinations and can serve as a possible explanation for purported cases of supernatural activity including ghost sightings.

The first scenario concerns the discovery of an object which is identical to the current concept of certain supernatural objects, namely ghosts. Therefore, according to the Similarity Criterion, this object would be easy to classify as supernatural. The discovery of such an object, therefore, would obviously falsify ontological naturalism. The second scenario depicts the discovery of an object which, although it may be directly responsible for many of the occurrences associated with the supernatural, bears little resemblance to the common current concept of ghosts.[9] Its classification, then, is questionable. Finally, the last scenario depicts the discovery of a previously-unknown form of radiation and would obviously be classified as natural. Another way to look at this Similarity Criterion is in terms of real-world (non-conceptual) familiarity: The object discovered in Scenario 3 is quite similar to other previously-made real-world scientific discoveries (the visible spectrum, ultraviolet, and infrared light) so is easily deemed natural. The object in Scenario 2 exhibits many new characteristics, yet is also familiar in the sense that other forms of energy are familiar. However, the object in Scenario 1 is almost entirely unlike anything previously experienced and is, therefore, easier to classify as supernatural. If the Similarity Criterion is valid, then the Provisory methodological naturalist has a way to respond to the Argument from No Distinction Criterion. She can respond by insisting that there is indeed a method for distinguishing between natural and supernatural things. One simply looks at how similar a discovered object is to current paradigmatic examples of supernatural objects.

One potential problem for the Similarity Criterion can be dealt with relatively quickly (compared to the more involved problems of the next section). This problem suggests that the Similarity Criterion is flawed because classifying future discoveries based on present concepts is backward. There is no reason to believe that our current concepts of

[9] Although, admittedly, some may argue that it does bear a strong resemblance to other supernatural objects such as auras or psychic energy.

supernatural objects would accurately *predict* supernatural discoveries. Defining the supernatural based on current concepts is presumptuous. It is unlikely that we already know what all the possible supernatural things would be, especially since the ontological naturalist holds that those supernatural things have yet to be discovered by science. Additionally, we recognize that our current concepts are just that (i.e., present convictions or established ideas). Holding that science would only discover truly supernatural objects if those objects match said concepts (or, in other words, insisting that *future* supernatural objects must conform to *present* concepts) may seem like pulling the cart before the horse. Therefore, the Similarity Criterion fails.

But the Similarity Criterion does not suggest that we will predict future discoveries. Such an interpretation of the Similarity Criterion is incorrect. The ontological naturalist believes that notions of the supernatural are entirely subjective.[10] Supernatural objects simply are whatever our current subjective concepts of them are. The Similarity Criterion correctly assumes the subjectivity of the supernatural. It is not "pulling the cart before the horse" to maintain that any discovered supernatural object must conform to current concepts of that object simply because no object which is not currently conceived as supernatural may be considered as such upon discovery. In the same way, it is not pulling the cart before the horse for astronomers to assert that all planets discovered in the future must have certain properties, without which they would not be planets. It would be wrong to say that this cannot be the case because astronomers are *predicting* what future planets will look like.

[10] The *de facto* position of the ontological naturalist, in my view, should be one which holds notions of the supernatural to be subjective, There are no, and never have been, supernatural objects. Therefore, concepts of the supernatural must be entirely subjective. We cannot even say that there is *indirect* evidence for the supernatural like there is indirect evidence for the existence of dark matter, for example. While it is true that the Provisory methodological naturalist who is an ontological naturalist will hold that it is possible that supernatural objects exist, acknowledgement of this possibility does not require agnosticism with respect to ontology. The Provisory naturalist need not be agnostic about the current existence of supernatural things. To be fair, though, one's position on this matter may have to do with how one pictures the combination of Provisory Methodological Naturalism and ontological naturalism. Those who believe that the Provisory methodological naturalist must take a softer position with respect to ontological naturalism (given that the Provisory view allows for the possibility of supernatural things) may argue that holding all notions of the supernatural to be entirely subjective is too strict. Per this softer view, Provisory Methodological Naturalism *does* require personal agnosticism about the existence of supernatural objects. As such, we should not make the leap to labeling notions of the supernatural as entirely subjective. However, those like myself who argue that the Provisory methodological naturalist might take a more hardline view of ontology will say that the leap is justified. Yes, the Provisory methodological naturalist who is also an ontological naturalist must recognize the fact that her ontology as falsifiable. But this does not mean she should remain agnostic about the existence of supernatural things. A high degree of certainty about the truth of ontological naturalism that, nevertheless, happens to be less than one-hundred percent certainty does not mean that one should be agnostic about the truth of ontological naturalism.

We should also note that to say that all supernatural objects must conform to current concepts is not to succumb to automatic naturalization. The Similarity Criterion does not assert that every discovered object will necessarily be natural. Instead, the Provisory methodological naturalist who uses the Similarity Criterion believes that objects in-line with current concepts of supernatural objects are possible and should indeed be deemed supernatural upon discovery. It is just that she also believes that these are the *only* possible supernatural objects.

Returning to our proposed hypothetical discoveries, we see that we have two extreme scenarios and one "middle ground" scenario. Scenario 1 concerns the discovery of an object which, the argument holds, should be considered supernatural while Scenario 3 concerns the discovery of an object which should be considered natural. If we chart hypothetical discoveries related to purported supernatural phenomena on a line, these two would be on the extreme opposite ends. We then have Scenario 2 which appears to be a mixture of both, or something of a "middle ground". We can imagine many such scenarios like this middle ground scenario, all perhaps incorporating some aspects of our current concepts of supernatural phenomena but differing in certain ways. Our line of hypothetical discoveries respective of the above scenarios relating to "ghost" might look something like the following:

> **Hypothetical discoveries (respective of 'ghost'):** Conscious, communicative, immaterial spectral being with human-like characteristics/personality - Conscious immaterial being - Affective energy - Energy - Self-induced phenomenon (ideomotor effect, sleep paralysis, etc)

The discoveries range from obviously supernatural at the beginning to obviously natural at the end. Keep in mind that these discoveries are not linked in any way. There is no implied connection between "affective energy" and "energy", for example. They are merely possible discoveries, with the former being more like the paradigmatic supernatural object than the latter.

Between the first ("Conscious, communicative…") and last ("Self-induced phenomenon…") discoveries are "middle ground" scenarios. With regards to these middle-ground scenarios, it seems the Provisory methodological naturalist has two options. First, she might say that *the closer* the hypothetical discovered object is to the current concept of the supernatural *the more likely* it is that the object is supernatural. This option represents

the Similarity Criterion as I originally presented it above. The current concept of a ghost is identical to the first object in the line: a "conscious, communicative, immaterial spectral being with human-like characteristics/personality." Thus, if a discovered object is a conscious, immaterial being, it is *more likely* to be supernatural than a self-induced phenomenon. This seems reasonable and avoids certain problems, one of which will be touched on shortly (5.4.2). However, this option also leads to ambiguity. Some may instead want a clear strategy for differentiation. They may argue that if the goal is to determine the conditions under which it is required that the Provisory methodological naturalist abandon ontological naturalism, "the closer an object is" and "the more likely" are not going to suffice. So, alternatively, we might consider the second option which is to hold that only a hypothetical discovery which is identical to the current concept (the first object in the line) can be considered supernatural while all other discoveries must be considered natural. We might call this the "strict identity requirement".

Admittedly, the strict identity requirement makes the Similarity Criterion something of a misnomer. Similarity is a degreed property and, therefore, any *similarity* criterion would seem to require the alternative "closer, more likely" approach. Strict identity goes beyond similarity into equivalency. As a result, the supernaturalist may protest, this strict identity requirement would allow for a wide range of natural phenomena and only a seemingly limited range of supernatural ones. However, proponents of the strict identity requirement would argue that this is necessary and warranted when what hangs in the balance is the fate of ontological naturalism. For if even one object identical to the current concept of a supernatural object should be proven to exist, then, contrary to the Essentialist view, ontological naturalism would be proven false.

5.4 Problems with the Similarity Criterion

In Section 5.3.2, I examined the argument that no natural/supernatural distinction criterion is needed because each Provisory methodological naturalist individually decides when or if ontological naturalism is falsified. This led to the response that such an approach is problematic because it leads to individual naturalists having varying defeaters for their ontological naturalism. A similar problem may arise with the Similarity Criterion and its use of current concepts of the supernatural. Some may argue that "current concept" is a vague term and, as such, may be interpreted in various ways. This makes its use in a

distinction criterion problematic. I can imagine a couple of problems with basing a criterion on current concepts of the supernatural, assuming that said concepts are vague. I will attempt to address these problems here. First, it seems that there can be general disagreement over what a current concept of a supernatural object consists of. Second, some might argue that our current concepts are wrong or incomplete because a "middle ground" object, such as a "conscious, immaterial being" should itself be considered supernatural.

5.4.1 Disagreement about Current Concepts

The first problem with the Similarity Criterion concerns the notions of "current concept" and disagreement. To fully realize the Similarity Criterion, we would need to list out all the current paradigmatic examples of the supernatural. While this would be an extraordinary undertaking, it does seem at least theoretically possible. But even if we could list out all the things currently considered to be supernatural (in all the myths, legends, belief systems, etc. in all the cultures that exist), there might still be disparities. It is likely, maybe even probable, that there would still be disagreement about what is included as current concepts of supernatural objects versus natural objects. In turn, this would lead to disagreements about which objects would classify as supernatural and which would simply be "middle ground" natural objects.

The defender of the Similarity Criteria should admit that the above is very likely to be true. It is quite probable that people would disagree on various proposals for current conceptions of the supernatural. However, this, in and of itself, is not so great a problem as to make the criteria unusable. There are numerous areas in science where controversial theories within a mainstream view arise (for example, string theory within quantum physics). However, this dissent does not render the original mainstream method invalid. The same might be true for the Similarity Criteria. There may be sporadic disagreement as to what should be considered a valid "current conception" of the supernatural, but this alone would not immediately invalidate the criteria.

Additionally, it is important to remember that, while science requires justification for its theories, the Similarity Criterion only requires consensus. The scientist might point to evidence as support for her views. One hypothesis is more plausible than another, she might say, given the evidence supporting it. But this is not the case with concepts and the Similarity Criterion. There is no way for one to argue that their own current concept is better

than another's current concept by presenting evidence in support of their view. Instead of being a hindrance, this restriction may lend credibility to the Similarity Criterion. The Criterion does not require us to know how or why current concepts became popular nor does it require justification (perhaps in the form of evidence) for their popularity. It merely requires us to know which concepts are the most widely-held. And this is easy to do. Just as in science, the more popular views are going to be, among other things, more widely discussed. Thus, current paradigmatic examples of the supernatural could be easily distinguished from the less popular and fringe examples.

5.4.2 "Middle Ground" Objects as Supernatural

Another possible problem with the Similarity Criterion results from our earlier attempt to avoid ambiguity. By discarding the "closer, more likely" approach and insisting that only objects which are identical to the current concept be considered supernatural, we arguably place too strict a restriction on supernatural classification. For example, it seems wholly probable that many people, naturalists and supernaturalists alike, would think that the second hypothetical discovery in the line above, a "conscious immaterial being", is supernatural.[11] Perhaps this would be especially true should this being somehow be linked with a previously living counterpart. However, a Similarity Criterion with a strict identity requirement ("for an object to be supernatural it must be identical to the current concept") prevents this discovery from being classified as such.

Additionally, we might recall the argument against reductionism made previously that held that supernatural alternatives will always be available despite naturalistic discovery (4.3.2). In that argument, it was hypothesized that, if an object identical to the current concept of "ghost" was proven to exist and then automatically naturalized (as in the Essentialist account), an alternative supernatural version of a ghost could be posited. But such a supernatural alternative could be posited even without automatic naturalization. If such a conscious immaterial being were discovered, nothing could stop ontological supernaturalists from insisting that such a being is supernatural and it seems that, barring acceptance of the Similarity Criterion, there are no good reasons to insist otherwise. This

[11] For space purposes, these descriptions of the supernatural concepts are brief. In truth, it seems that the Similarity Criterion would require a fuller description of each concept. Such a description would allow for the matching of a sufficient number of the properties of a discovered object to a sufficient number of properties of the concept in order for it to be both sufficient and *necessary* that the discovered object match the supernatural concept. But just what a sufficient number of properties would be is difficult to say.

being the case, it is unreasonable to assume that only objects identical to the current concepts of supernatural objects should be considered supernatural upon discovery.

One response to this problem is to advocate a return to the more ambiguous "the closer, the more likely" form of the Criterion rather than insisting that the discovered object be identical to the current concept. True, such an approach is not definitive but we might say that it is better than nothing. And it does have the advantage of avoiding these problems associated with a strict identity requirement. Also, as noted before, similarity is a degreed property so "the closer, the more likely" better fits the notion of a "similarity criterion" anyway. If we prefer a Similarity Criterion to an "Equivalency Criterion", then this approach seems reasonable.

Having said this, the proponent of strict identity still has ways to respond to this "'middle-ground' objects are supernatural" problem. For example, she might assert that sufficiently full descriptions of supernatural concepts (descriptions of the sort mentioned in the above footnote 11) would eliminate ambiguity and make this problem irrelevant. Were we ever able to provide full descriptions of supernatural concepts, we would eliminate "middle-ground" objects altogether. Alternatively, she might simply agree that these "middle-ground" examples (e.g. "conscious, immaterial being") should themselves be considered current concepts of supernatural objects. In other words, what was once identified as a "middle ground" natural object (for example, as in Scenario 2) should simply become a supernatural object (or a "Scenario 1-type" object). If we allow the Similarity Criterion to recognize "conscious, immaterial being" as a supernatural object, then we have answered the problem above. Individuals who would hold that the discovery of a conscious, immaterial being is a discovery of a supernatural object would then be able to strictly identify that discovered object with the supernatural "conscious, immaterial being" in the Similarity Criterion. Essentially, what this response does is suggest that the number of current concepts of supernatural objects recognized by the Criterion is too low if none of these concepts reflect "conscious, immaterial being". Since many people believe that these various secondary examples should be classified as supernatural, we should expand the number of supernatural concepts recognized by the Similarity Criterion to accommodate these people and their beliefs.

The two proposed problems for the Similarity Criterion which I have examined in this and the previous section have not proven to be insurmountable. Disagreement about

current concepts and "middle ground" objects can both be addressed. But an argument might also be made that the Similarity Criterion is *valuable* for at least a few reasons: First, in the spirit of cooperation, the Criterion credits ontological supernaturalists' current accounts of supernatural objects. Current popular concepts of the supernatural are based, at least in part, on what supernaturalists believe to exist. They are not based on naturalistic notions of what a non-natural object would be (assuming such notions are even possible). So, while it is true that the strict identity requirement ("for an object to be supernatural it must be identical to the current concept") is demanding and that some supernaturalists would hold such a criterion to be too inflexible, few supernaturalists would be able to say that the supernatural concepts to which the discovered object must be identical to are ones which they could not endorse.

Second, while individual Provisory methodological naturalists likely disagree about the chances of science ever discovering supernatural objects, all Provisory naturalists hold that a certain standard must be reached for any object to qualify as supernatural. One advantage of the Similarity Criterion is that it would have the indirect effect of keeping this standard sufficiently high. A supernaturalist who ascribes existence to a non-natural ghost based on sounds in the attic or photograph frames toppling over is not justified in her belief in the existence of the supernatural. This is because such occurrences would just as easily fit under Scenario 3 (hallucinations, natural object) as they would under Scenario 1 (Ghost, supernatural object). The believer would need to collect more (and more appropriate) evidence to justifiably label such a phenomenon as supernatural.

Finally, the whole point of suggesting the Similarity Criterion was to enable us to avoid having to automatically naturalize every discovered object or, in other words, to avoid having to adopt the naturalist alternative to the Provisory view, Essential Methodological Naturalism. Should it be successful, the Similarity Criterion would provide an answer to the Argument from No Distinction Criterion and seemingly allow us to do just that.

That said, the Similarity Criterion is far from foolproof. There remain numerous problems with the idea of accurately distinguishing natural from supernatural objects based on popular concept alone. One big concern has to do with the fact that "current conceptions", despite the discussion above, remains a vague notion. This vagueness is exhibited in things like terminology. For example, in discussing current conceptions of the supernatural I have referred to them as both "concepts" and "paradigmatic examples". While I have assumed

that these terms are interchangeable, an argument might be made that these are two different things. The former is an inherently subjective thing, the latter is something objective. If the subjective concept we have of a supernatural object is not identical to the objective paradigmatic example of that supernatural object, then we have disparity. And while our concepts may approximate the paradigmatic examples, it seems likely that they would not be identical to them. If this is the case, we would then need to know whether to compare the discovered objects to the idealist concept in our heads or to the realist paradigmatic example which objectively exists somewhere outside the mind. Perhaps simply adjusting the terminology here would sharpen the idea and help clarify things but perhaps not.

It may be that, if the Similarity Criterion is in any way successful, it is only part of the answer. Mine is not the only attempt to develop a distinguishing criterion to separate the natural from the supernatural; Some other proposals are highly detailed (and are often quite technical).[12] It is possible that the Similarity Criterion might work in tandem with one of these other theories. Or, more likely, it may be that we do not need to come up with an appropriate criterion. A universal distinction criterion is unnecessary. This does not mean that we do not need to distinguish between natural and supernatural things, as the first response suggested. Nor does it suggest that an objective distinction cannot be made between natural and supernatural objects, as the second response suggests. Rather, there is a pragmatic solution to the problem of No Distinction Criterion.

5.5 Response to the Argument from No Distinction Criterion: The Pragmatic Solution

While the Similarity Criterion does have the advantages just mentioned, it is unable to definitively answer the Argument from No Distinction Criterion given the vagueness of "current conceptions" of the supernatural. My final response will hopefully provide a more conclusive answer. The pragmatic solution to the Argument from No Distinction Criterion combines elements from the first and third responses given above. Like the first response, the pragmatic solution argues that no universal distinction criterion is needed. And like the third response, it argues that current conceptions should be taken as legitimate. Though it

[12] For example, Taner Edis and Maarten Boudry seek to establish the boundary between the natural and supernatural by advocating a form of physicalism which uses combinations of necessity and chance or, algorithmic rules and randomness, to explain available data sets. As I understand it, this leads to the assumption that tasks beyond necessity and chance are also beyond physics. Utilizing concepts from theoretical computer science, they hold such tasks to be found in noncomputable functions. The existence of a noncomputable "oracle", or, in other words, the existence of a unique signature in data sets, would signal something beyond physics or, supernatural (Edis and Boudry, 2014).

does differ slightly from the third response in that these legitimate current conceptions are conceptions of the *natural* rather than conceptions of the *supernatural*. The pragmatic solution holds that, given their usefulness, we should provisionally take our current conceptions of natural things to be legitimate.

In his book, *Science Without Laws* under a section entitled, "Naturalism and Pragmatism", Ronald N. Giere makes the following claim,

> A pragmatic orientation suggests that it would be a mistake to embark on a search for a universal criterion to demarcate science from non-science. Rather, we should provisionally take the recognized sciences of our own time as legitimate. If specific doubts are raised about any of them, these doubts can then be investigated… This attitude corresponds well with the historical record which shows that what counts as a scientific explanation changes over time (Giere, 1999, p. 76).

While Giere here focuses on the demarcation between methodologies (science versus non-science), we can apply the same pragmatic approach to the question of demarcating between ontologies (natural versus supernatural). Substituting ontology for methodology in the quote above we get: "A pragmatic orientation suggests that it would be a mistake to embark on a search for a universal criterion to demarcate natural from supernatural. We do not need a universal criterion to demarcate the natural from the supernatural. Rather, we should provisionally take our current conceptions of natural things to be legitimate (i.e., we should assume that ontological naturalism is true). If specific doubts are raised about [ontological naturalism], these doubts can be investigated. This attitude corresponds well with the historical record which shows that what counts as a natural explanation changes over time [e.g., lightning]." Giere does not get into detail in the quote above as to why we are justified in making this provisional assumption. However, a general tenet of pragmatism is that certain assumptions are justifiable just in case they are useful. In this case, our provisional distinction of natural things is useful because it allows for science to progress. Making this distinction allows for scientific advancement which itself provides benefits to mankind (e.g., medicine, technology, etc.). We might also argue that the distinction is useful because it allows us to maintain the falsifiability of ontological naturalism.

With this, we have provided a pragmatic solution to the Argument from No Distinction Criterion. No universal criterion is needed to distinguish between natural and

supernatural things. Rather our current conceptions of the natural, resulting from scientific observation, may be thought of, at least provisionally, as legitimate and exhaustive of all existing things in our world. One appealing thing about this solution is that it specifically advocates for the Provisory view ("…we should *provisionally* take…", "If specific doubts are raised about [ontological naturalism], these doubts can be investigated").

The pragmatic solution differs from the other responses to the Argument from No Distinction Criterion in several ways. First, as noted above, the pragmatic solution diverges from the third response in that the pragmatic solution focuses on conceptions of natural things rather than conceptions of supernatural things ("Rather, we should provisionally take the current conceptions of natural things to be legitimate."). But another, perhaps more obvious way the pragmatic solution differs from the third response is that the pragmatic solution holds there to be no universal, standard distinction criterion. While the Similarity Criterion of the third response is meant to act as a universal criterion, the pragmatic solution says that no such criterion is necessary. All that is needed are our current conceptions of natural things. That said, this does not mean that the pragmatic solution follows *completely* in-line with the first response which also holds that no criterion is necessary. The pragmatic solution deviates slightly from the first response in that it does not argue that the classification of natural and supernatural things is unimportant (and that the only thing that matters is existence). Instead, the pragmatic solution holds that the classification of natural and supernatural things does matter. While no definitive distinction criterion is required, natural objects, as observed by science, are still distinct from supernatural objects. Finally, the pragmatic solution differs from the second response in that the pragmatic response does not consist of a subjective criterion. This is because it relies on objective concepts of the natural.

The Essentialist position, with its unfalsifiable ontological naturalism, is that the supernatural cannot exist in our world. Since science is all-pervasive in our world, and since science can only evaluate natural things, only natural things can exist in our world. The Argument from No Distinction Criterion attempts to support this view by arguing that hypothetical supernatural objects in our world could never be classified as supernatural because there is no method by which to distinguish natural from supernatural objects. Meanwhile, the pragmatic solution in defense of Provisory Methodological Naturalism insists that current conceptions of the natural are sufficient for determining natural things. The pragmatic solution dismisses the need for either a universal or subjective distinction

criterion. Rather than consisting of a distinct set of guidelines for the falsification of ontological naturalism, the pragmatic response is more of a "cross that bridge when we come to it" solution. We would have a good idea as to what, if discovered, should cause us to abandon ontological naturalism. Said discoveries would require the universal abandonment of ontological naturalism. Falsification would not be subjective. Yet, at the same time, there is no standard rubric by which to deem an object supernatural. We merely defer to current science and whether the object is eventually subsumed under natural things.

The Essentialist will likely balk and respond that this puts us back where we started. In their view, we still would not know what the justification would be for science labeling Object *X* supernatural rather than natural. Additionally, like Carrier's solution noted above (5.3.2), we would still need to wait for science to either subsume the discovered object or not. This may take some time, during which the discovered object may go unclassified or incorrectly classified. Both of these are fair points. The pragmatic solution may be the best we can do with regards to the distinction problem but those who insist that we are never justified in classifying any object as supernatural will never be convinced that science could ever recognize supernatural things. But nor will the Provisory proponent ever agree to the notion that the supernatural existing in our world is *a priori* impossible. Perhaps the best way to approach the stalemate is to appeal to areas of common ground. Both Provisory and Essential methodological naturalists hold that science has yet to affirm supernatural things. The Provisory naturalist may even go so far as to argue that such affirmation is highly unlikely (though she can never claim it to be impossible). Perhaps methodological naturalists can simply choose to focus on areas of agreement between the two views and then agree to disagree about the possibility of existing supernatural phenomena. This might be the *most* pragmatic approach to resolving the conflict between these two groups.

5.6 Conclusion

In this chapter, I have examined the argument that the Provisory view is untenable because the theoretical falsification of ontological naturalism that it proposes is unattainable. Falsification is unattainable because there is, seemingly, no surefire method to distinguish natural from supernatural things. I detailed a few ways the Provisory naturalist might respond to this charge and noted that not all the responses are viable. For example, holding that differentiation between natural and supernatural is unnecessary and that only existence

matters are not tenable positions for the Provisory methodological naturalist. Because she believes that ontological naturalism is falsifiable, the Provisory naturalist requires a distinct supernatural category by which ontological naturalism might, theoretically, be falsified. Additionally, the Provisory naturalist cannot respond to the Argument from No Distinction Criterion by asserting that the distinction should be subjective and left to the individual naturalist. Among other things, this would render methodological naturalism itself subjective.

Some might insist that a universal distinction criterion provides the best defense of Provisory Methodological Naturalism against the Argument from No Distinction Criterion. I disagree with this claim but, nevertheless, attempted to fashion a universal distinguishing method using the Similarity Criterion. This Criterion holds that a discovered object is supernatural if it is similar or identical to our current concept of that supernatural object. While perhaps promising, the Similarity Criterion is an incomplete solution. In general, there are numerous problems with creating a standard demarcation criterion for differentiating between natural and non-natural things. But also, there are problems with the Similarity Criterion specifically (for example, the Criterion's reliance on the arguably vague notion of "current conceptions"). For the above reasons, I concluded that the pragmatic solution is the most successful of the responses given here in answering the Argument from No Distinction Criterion. This solution does not rely on a standard demarcation criterion but nor does it rest exclusively on existence claims or subjectivity. Instead, it holds that our current conceptions of the natural, resulting from science, may be thought of as provisionally legitimate.

Regardless of their overall success, all the responses to the Argument from No Distinction Criterion presented here do at least avoid making one problematic assumption. That is the assumption that natural things supervene on physical things. It is a mistake to simply assert that natural things are merely physical things (and that we can distinguish natural things accordingly). This is because ontological naturalism and physicalism are not synonymous. They are, despite the assumptions of many, two different views. I will discuss physicalism in a bit more detail in the last chapter of this thesis. First, however, I will look at the third and final problem associated with one of the above benefits of Provisory Methodological Naturalism. This problem concerns the viability of scientific work on the supernatural.

6. Defending Provisory Methodological Naturalism: The Scientific Work Problem

6.1 Introduction

In this chapter, I will look at issues surrounding the practical application of science under Provisory Methodological Naturalism. I will examine the argument that Provisory naturalism is false because science can neither support nor disprove the veracity of a specific supernatural phenomenon, intercessory prayer. According to the argument, intercessory prayer lies outside the evaluative capabilities of science. This is a problem for Provisory naturalism because the Provisory view requires that all phenomena which affect the natural world should be evaluable by science. If even one supernatural phenomenon is unevaluable, then Provisory Methodological Naturalism would be false.

We should note that, if this argument is sound and Provisory naturalism is false, this does not mean that, necessarily, Essentialism is true. The argument I will present is a supernaturalist argument, not a naturalist one. In other words, it holds that methodological supernaturalism is true. And while all naturalist arguments against Provisory naturalism are, necessarily, arguments for Essentialism, such is not the case for supernaturalist arguments. Clearly, no supernaturalist argument against Provisory naturalism will necessarily support Essential naturalism. Similarly, if we show that the argument is wrong and science can indeed evaluate a supernatural phenomenon such as prayer, this would validate Provisory Methodological Naturalism but it would not disprove Essentialism. As previously noted (2.4), the Essentialist also holds that science can examine supernatural phenomena such as prayer. The Essentialist simply asserts that, should such phenomena be proven effective or existing, we cannot label it supernatural. Therefore, even if we conclusively show in the following argument that science can potentially prove the effectiveness of prayer, this alone will not disprove Essentialism. This is because the Essentialist herself agrees with this conclusion.

To disprove Essentialism with this new argument we would need to go a step further and show that any proof of the efficacy of prayer would mean that ontological naturalism is false. I have attempted to argue as much throughout this thesis so I will avoid doing that here. Instead, in this chapter, I will simply focus on one particular supernaturalist argument

that science is unable to evaluate prayer. If this argument is valid, Provisory Naturalism is false. I will argue that it is not valid.

That said, there may still be room for a smaller argument against Essentialism here. We might recall that the third benefit of Provisory Methodological Naturalism held that the Provisory view is advantageous to naturalists who value science because the Provisory view allows for competent scientific work done on supernatural claims to be potentially valid. Given the above, we can expand this third benefit somewhat to include the idea that Provisory naturalism is preferable to the alternative because, under the Provisory view, scientific experimentation on the supernatural is more in-line with our common expectations of such work. Under Provisory Methodological Naturalism, an experiment to determine the existence of supernatural entities such as ghosts would indeed be an experiment to determine the existence of supernatural things. It would not, necessarily, be an experiment to discover unknown natural objects. Likewise, testing the efficacy of prayer would not involve presupposing that any element of the prayer process which science observes (the practice itself or the agent acting in response to the prayers) would be natural. The Essentialist would need to make such presuppositions but the Provisory naturalist gets to avoid them.

That said, most Provisory methodological naturalists fully expect science to discover natural causes for supernatural claims. For example, they expect to find that, say, atypical ventilation and air flow patterns are responsible for the eerie activities in a supposedly haunted house. They do not expect such phenomena to be the caused by the spectral remains of the recently deceased. Provisory naturalists know that natural explanations for purportedly supernatural events are much more likely, given that the supernatural has never been sufficiently shown to exist. But, at the same time, the Provisory naturalist does not assume that any and every new discovery will be automatically natural. We might simply say that the Provisory view is better because it allows us to evaluate supernatural claims without dismissing the possibility of the supernatural offhand.

It may be the case that science cannot observe *all* truly supernatural objects. There may be unobservable objects which deserve to be classified as supernatural. But there is no reason why science is precluded from evaluating observable supernatural objects or evaluating the observable effects of said objects. Furthermore, Provisory naturalists will say that no possibly-existing unobservable objects can be identified. There is currently nothing that we can say is (or even could be) beyond scientific understanding. Therefore, the

methodological supernaturalist is not justified in asserting that, for example, the tangible results and benefits of prayer remain outside of scientific reach. Science can indeed tell us something useful about the practice and mechanics of praying.

I should also note that this chapter is primarily devoted to (a) only one paper on the non-evaluability of prayer and (b) only one supernatural phenomenon (intercessory prayer). My justification for this is the following. Until now I have mostly examined "broad" arguments against Provisory naturalism. By "broad" I mean arguments which lump *all* supernatural objects and phenomena together. Essentialists (and some supernaturalists) argue that science cannot prove the existence of *any* truly supernatural phenomenon. Thus, I have examined and criticized the various explanations given as to why science is prohibited from proving not just ghosts but also ESP, psychic healing, remote viewing, telekinesis, etc. However, it may be that an argument that focuses on just one supernatural phenomenon (and not the entirety of all phenomena) might prove to be a stronger critique of Provisory naturalism. A compelling argument for why science cannot prove the existence of supernatural out-of-body experiences *specifically*, for example, might provide details about the limitation of science in relation to OBEs that we would not see in an argument for why science cannot evaluate OBEs *and* every other supernatural phenomenon.

Again, any supernatural object or phenomenon that affects the natural world should be observable by science according to the Provisory view. If science cannot evaluate even one such supernatural object or phenomenon, then Provisory naturalism is false. Thus, a compelling argument against the evaluation of only prayer (or OBEs, ghosts, etc.) is also a compelling argument against the Provisory view.[1] For this reason, any comprehensive defense of Provisory Methodological Naturalism would do well to address this narrow argument along with the broad. All of this, hopefully, goes some way to explaining the focus on (b) or, the single phenomenon of intercessory prayer. With regards to (a), the reason I focus primarily on the one *paper* in this chapter is simply a matter of availability. While there are numerous works which give the broader argument, very few focus on the narrower one. Few academic works attempt to answer why science cannot evaluate, for example, a single phenomenon like *qi* without slipping into the broader argument. Among those that do offer a sufficiently detailed focus on a single phenomenon is the paper on the non-evaluability of intercessory prayer that I will examine here. Finally, I should note that, even

[1] And, incidentally, Essentialism as well.

though I do focus primarily on the narrow example of prayer in this chapter, my points are applicable to other examples. I will cover some of these in Section 6.4.7.

Thus, in this chapter, I will argue against one particular supernaturalist claim that prayer is outside the boundaries of science. I will argue that Provisory Methodological Naturalism is better than certain approaches to supernaturalism because it allows that science can evaluate prayer and tell us something useful about the practice, namely whether it is effective. But it is also better than Essential Methodological Naturalism because, per the expanded third benefit, it holds that if science does deem prayer to be effective, the practice will remain a supernatural one. It will not be automatically naturalized. And this is more in-line with the commonly-held notion of prayer.

In an article entitled "Experiments on Distant Intercessory Prayer: God, Science, and the Lesson of Massah", John Chibnall, Joseph Jeral, and Michael Cerullo (hereafter, "CJC") argue that intercessory prayer is an unevaluable phenomenon. Intercessory prayers are petitions for the healing of sick or injured individuals which are directed to God by a third party, or, *intercessor*. CJC argue that, while such prayers are the subject of numerous scientific studies (for example, Benson et al., 2006; Harris et al., 1999; Matthews et al., 2000; O'Laoire, 1997; Sicher et al., 1998; Walker, 1982), the effectiveness of intercessory prayer simply cannot be measured by science. In Section 6.2 I begin my critique of their argument by first qualifying CJC's proposal and placing it in the context of the subjects of this thesis. CJC never discuss or explicitly advocate for methodological supernaturalism in their work. However, given the nature of their argument along with certain statements they make, it is safe to assume that this is their methodological position. It is therefore likely that CJC hold both Essential and Provisory methodological naturalism to be false. In Section 6.3 I will explain CJC's main argument. In Section 6.4 I will respond to CJC's claims. I will also propose a few counter-arguments in defense of CJC and attempt to respond to them as well.

6.2 CJC's Argument Qualified

The goal of this thesis is to defend the Provisory form of methodological naturalism against the rival naturalist view as well as against methodological supernaturalism. But CJC never identify themselves as methodological supernaturalists in the paper under review. Nor do they claim to support methodological supernaturalism with their argument. Since they say

little about methodological naturalism as a thesis, it will be necessary to place their argument in the context of the Essentialist/Provisory debate. In this section, I will briefly reiterate some of the pertinent details of that debate and then discuss CJC's argument in relation to those details. I will also explain why I believe we are justified in assuming CJC to be methodological supernaturalists. Or, at the very least, we are justified in assuming that they seek to defend methodological supernaturalism.

Because Provisory methodological naturalists hold that, currently, nothing observable by science (i.e., nothing that measurably effects our world) can be considered irretrievably beyond scientific understanding, they also must hold that the phenomenon of intercessory prayer is evaluable by science.[2] As a result, we can obviously rule out CJC as Provisory naturalists. However, given the following quotes, it seems probable that they would not identify with methodological naturalism of any form:

> God cannot be compelled by our research designs, statistics, and hypotheses to answer our demand, 'Is the Lord among us or not?'…[O]ur intercessions must be a matter of faith and trust in God, of putting our hope in God, of knowing we are part of God no matter what the outcome of our experience in the physical world.

And on the same page,

> [M]ixing experimental method with faith degrades both concepts. We do not need science to validate our spiritual beliefs, as we would never use faith to validate our scientific data (Chibnall et al., 2001, p. 2536).

Both statements advocate for the position that the scientific method is insufficient for describing the whole nature of reality. "Research designs, statistics, and hypotheses" only take us so far in our explorations. Additionally, spiritual beliefs can be validated using means other than science. These views are clearly antithetical to methodological naturalism or the notion that science is the best and only method for discovering the world. Thus, it

[2] The argument might be made that while certain elements of intercessory prayer might be observable, the mechanics of prayer are not. The problem with this argument is that those purportedly unobservable elements would still need to act in our world. For example, an unobservable God would need to interact with the natural world to affect change. And while there may be unobservable objects in our world (2.5.1), it would seem that objects which affect the natural world would need to be at least partially observable. So, the mechanics of prayer, in affecting the natural world, could not be completely unobservable.

seems quite clear that the authors would not identify as methodological naturalists, Essential or otherwise.

Two options remain open to CJC. However, neither of these seem likely either given the quotes above. The first option would be a *methodological agnosticism*. CJC would hold either that they do not know what the best method for discovering reality is or that we are incapable of knowing the best method. The reason why it is unlikely that they hold this position is because the second quote above strongly suggests that their preferred methodology is a mixture of natural and supernatural methods (entailing methodological supernaturalism). It does not suggest that they are unsure of or unwilling to commit to a best approach for discovering the nature of reality. The second option would be *methodological nihilism* which holds that neither methodological naturalism nor methodological supernaturalism is the best method for discovering reality. But, like ontological nihilism (5.3.1) this option seems unlikely. If there were no best method for discovering the nature of reality then all methods would be equally useful. And if all methods to discover the nature of the world are equally valid then they are, strangely enough, also equally invalid. If all methods to discover truth are equally proficient, they are all useless. One would probably not want to live in a world in which the results of scientific polling or the findings of theoretical physics experiments might just as easily be obtained using tarot cards. In any case, nothing in the above quotes or in the rest of CJC's work suggests a nihilist approach to methodology. Thus, after ruling out both approaches to methodological naturalism along with the agnostic and nihilist views, we may safely assume CJC to identify as methodological supernaturalists.

6.3 CJC's Argument against Scientific Evaluation of Distant Intercessory Prayer

CJC argue that intercessory prayer cannot be tested via scientific methods because the concept of prayer cannot be adequately defined. The justification for this is as follows. In the various studies on prayer effectiveness, prayer may be considered the *causal construct* (Chibnall et al., 2001, p. 2529). A causal construct is an independent variable taken to be directly responsible for the given effects (healing, etc.) in a scientific experiment. If the operations in the experiment meant to evoke the causal construct (for example, kneeling, folding one's hands, reciting certain words) are appropriate, then the experiment can be said to have good *construct validity*. An experiment on the effectiveness of performing a specific,

well-defined rain-dance in producing rain arguably has good construct validity. The causal construct (the rain-dance) may be accurately evoked in the specific, well-defined actions (appropriate bodily movements) of a dancer.

But in the case of prayer studies, the authors argue, construct validity is always very poor. This is because there are too many methods of prayer, too many variations on ways to pray, to be able to single out a single notion of "intercessory prayer" that may then be accurately evoked through actions (kneeling, etc.). While the rain-dance has a well-defined structure, intercessory prayer does not. The result is that, in their experiments, scientists hold a view of intercessory prayer which is either too limited or is simply incorrect (i.e., out of touch with prayer as normally practiced). Because the crucial element of good construct validity will always be missing, science can never hope to examine the effectiveness of intercessory prayer.

6.3.1 Prayer as a Causal Construct

CJC provide two primary reasons why prayer cannot be considered a valid experimental construct and, therefore, cannot be studied scientifically. The first reason is that (a) a one-size-fits-all notion of prayer is unavailable. Prayer comes in many different forms and cannot be reduced to a single type. Because of this, the "critical dimensions" of prayer cannot be easily defined and a solid construct cannot be formulated (Chibnall et al., 2001, p. 2529). To convey the futility of defining a prayer construct, the authors pose several questions:

> Is the amount of prayer important? Is the type of prayer important? The form? The duration? The frequency? The level of fervency? The entity to whom it is directed? The number of prayers per unit of time? Does the number of intercessors matter? Does a team vs individual intercession method matter? Does the faith tradition of the intercessor and/or intercessee matter? Does the power of the intercessor matter? Do the beliefs and experiences of the intercessor and/or intercessee matter? Does the worthiness of the intercessor and/or intercessee matter (Chibnall et al., 2001, p. 2529)?

The lack of definitive answers to the above questions seems to be problematic enough. However, each of these questions might spawn their own additional questions such as, "*If* type and form are important, how many types and forms are there?" Such questions call

attention to the fact that there are many different methods by which to pray and multiple forms which prayer may take.

The second reason why prayer cannot be considered a valid construct according to the authors is that (b) the mechanism behind prayer cannot be precisely defined. There is no way to quantify what, if anything, makes prayer effective. This lacking in the understanding of the mechanism behind prayer is at least partly due to (a). As a result, prayer cannot be studied as an effective treatment in the way, say, antibiotics can. Scientists studying the effectiveness of antibiotics can

> …control the type of antibiotic, the dose of the antibiotic, the dosing schedule of the antibiotic, the coadministration of other medications that have antibiotic effects or interfere with antibiotic effects, and the duration the antibiotic is taken, to name a few of the most obvious parameters. Why? Because all of these factors are critical to the construct validity of the cause… No model guides our understanding of intercessory prayer as a treatment in the way we know that drug pharmacokinetics, type, dose, schedule, interactions, and treatment length are critical to an antibiotic as a treatment. In fact, we believe no scientific model can guide it (Chibnall et al., 2001, p. 2530).

Here the authors appear to be saying that, while we can control important elements of antibiotic research to obtain varying results and to, consequently, help us learn how antibiotics themselves work (or, to quantify what makes antibiotics effective), the same cannot be said for prayer research. Prayer research simply cannot be similarly controlled. The reason we cannot control the important elements of prayer research is that prayer is poorly defined as a construct. Thus, we cannot justifiably attribute positive or negative results to the prayer taking place in these studies. Scientific evaluation of prayer is hampered by a vicious Catch-22: We do not know enough about prayer to be able to evaluate it scientifically but we cannot learn more about prayer *because* we cannot evaluate it scientifically.

(a) and (b) work in tandem to create the crux of CJC's argument which is (c): Because there is no universal notion of prayer, we cannot hope to determine the effectiveness or mechanism behind it through science. Pairing (a) and (b) is probably a good idea because both claims are fairly weak on their own. Saying that prayer is a poor construct

merely because there are various forms of prayer and methods by which to pray is obviously problematic. As I will soon note, each of the various forms and methods of prayer might be addressed individually. As such, each form and method could be individually defined as constructs. Likewise, it is also a problem to say that prayer cannot be scientifically tested because its workings are unknown. Such mystery has seemingly never obstructed scientific evaluation before. Thus, I will also soon argue that prayer can be tested, even though its causal mechanism remains undefined.

6.4 Response to CJC's Argument and Various Counter-arguments

In the next two sub-sections, 6.4.1, 6.4.2, I will provide a couple of responses to CJC's view. However, CJC's stated argument extends beyond the points (a-c) mentioned above. There are some additional minor elements of their view which I have not yet addressed. I will present and respond to these elements of their argument in Sections 6.4.3, 6.4.4, 6.4.5, and 6.4.6.

At this point, it may be apparent that arguments like CJC's might be made against the scientific evaluation of other supernatural phenomena. For example, an argument might be made that the scientific evaluation of tarot reading is impossible because it would suffer from construct validity issues. Or the evaluation of *feng shui*. In 6.4.7 I will examine how my responses to CJC and prayer might apply to other arguments of this type. For now, I will briefly note that, if it is the case that these other arguments can be made, then my response to CJC's argument regarding construct validity and prayer would apply to them as well.

I begin by offering up the idea that science can evaluate things, including intercessory prayer, which may seem indefinable. Therefore, contrary to what CJC and others might think regarding prayer and construct validity, science can still evaluate intercessory prayer.

6.4.1 Response to CJC: Science Can Evaluate Indefinable Phenomena

The basis of the authors' criticism of the scientific evaluation of prayer involves the idea that prayer is, in some way, indefinable. But science has made it its business to examine phenomena which have been thought to be indefinable. In all varieties of inquiry, science has proven that we do not need to have full knowledge of a cause to test the effects of that

cause. CJC's dismissal of scientific experimentation of prayer is wholly unwarranted for this reason. It is true that prayer is a multifaceted phenomenon. Because of that, molding prayer into a single concept on which to do research is indeed an impossible task. But the fact that we cannot define prayer definitively does not mean that we cannot test the effectiveness of different variations. While we may not be able to test the impossible-to-obtain universal conception of prayer, we can test individual notions of praying. These could include various experiments formulated to answer all the questions asked in the quote above (regarding fervency, form, amount, etc.).

For this reason, questions concerning cause which are meant to obtain construct validity ("Which form of intercessory prayer is the 'universal' form" "How does prayer work") should be set aside as irrelevant. Again, we do not need to define a one-size-fits-all version of intercessory prayer to test the various versions' effectiveness. When we test prayer we only need to focus on a specific form of prayer to see if this specific form (rather than prayer in general) is effective. Additionally, we can measure the effectiveness of specific forms of prayer without a proper understanding of the natural or supernatural mechanism which instantiates it.

6.4.2 Response to CJC: Experiments with Similar Construct Validity "Problems" Remain Valid

The reasons supplied by CJC for why prayer research is problematic are perplexing given that we can propose experiments with similar construct validity "issues" which, nevertheless, appear completely viable. For example, we can imagine an experiment to chart the effects of a gardeners' happiness on plant growth. Does the gardener's attitude affect plant size? To make the experiment manageable, constraints would need to be put in place to limit the meaning of "happy". For it could be argued that, in much the same way as prayer, happiness is a challenging causal construct. Happiness, after all, comes in many forms with multiple methods of expression. Even so, there seems to be no reason why such an experiment could not be successful. Happiness, despite being an ill-defined construct, can still be qualified for experimentation. And the results (plant growth) may still be said to be directly attributable to happiness despite the causal mechanism being poorly or not at all understood.

Even more rigorously defined constructs could still run into the difficulties of the sort proposed by CJC if we allow them to. Instead of happiness, we might test for the effects of music on plant growth. In this case, we would have what some might consider a more precisely defined concept to test (music). However, numerous questions could still arise. What genre of music should be used? Should it contain lyrics or be entirely instrumental? If sung, should it be sung live? Should it be a male or female voice and of what type? If it is recorded music, what media format (CD, vinyl, radio) should be played? And so on. But the fact that such questions may be asked does not prevent restraints from being placed on "music" and valid experimentation from taking place. In the same way, "prayer" can be constrained within the context of the experiment.

We could, if we worked at it, use these various questions to chip away at the construct validity of music. At its core, music is merely sound waves, we might say. It is completely dependent on the listener and no different, in many ways, to other noises in the environment. The concept of music, considered a certain way, can be as vague a concept as prayer. Thus, the music, happiness, and prayer experiments are identical in the sense that their constructs may be questioned in this manner. However, that does not mean we are *required* to question them in this manner. As shown, experiments which allow us to derive valid empirical data and useful information can be built around subjects which are arguably vague. We can surely perform the experiments on plant growth proposed above and obtain worthy data.

It is possible that some may contest the notion of these various experiments being identical. Perhaps they would insist that prayer studies differ from the other studies in that prayer studies purport to research a supernatural method while the others study natural methods. But this fact alone should make no difference. The point here is that we can run into similar difficulties in the testing of natural methods as we do in the testing of the supernatural method of prayer if we allow for them. But we simply should not allow for them.

One reason we should not allow for these difficulties is that CJCs use of construct validity here to dismiss valid scientific work sets a dangerous precedent. It seems possible that CJC *would* dismiss experiments like the ones above. It is possible that CJC would respond to the above experiments on music and plant growth by arguing that we should dismiss all experimentation of this sort. For example, they might hold that, like the efficacy

of prayer, the efficacy of music on plants cannot be scientifically evaluated because music in this context (like prayer) is not precisely and universally defined. If a negative outcome obtains, we can always say that it didn't work because the music wasn't right, the media format wasn't right, etc. Likewise, if prayer does not lead to positive results under scientific conditions, we can always say that the format of the prayer was wrong. Another way to illustrate the worry here, I believe, is to say that, while a negative outcome might be obtained in one context, it will always be possible that prayer in some other form or context *would* work. It may simply be the context of the experiment that prevents it from working. If the experiment on music and plant growth fails, we cannot conclude that music does not affect plant growth. This is because the experiment might have failed, not the music. And because we can never make a generalized conclusion of the sort "music does not affect plant growth", we cannot say that valid scientific experimentation on music and plant growth can be done.

The problem with this response is that construct of prayer being experimented upon is indeed sufficiently ("precisely") defined. It is sufficiently defined within the context of the experiment (For example, "Individual *x* with background *y* praying at time *z*, etc."). It is true that a negative result from this context does not mean that prayer, in general, does not work. In some other context (For example, "Individual *a* with background *b* praying at time *c*, etc.") it may work. But we also cannot conclude from all this that science *cannot ever observe* the context (*a*, *b, c*) that does work. There is nothing preventing science from observing (*a*, *b*, *c*). Additionally, it should be noted that no competent scientist (and, especially, no scientist who identifies as a Provisory naturalist) would conclude from experiments such as the one above that prayer never, in any circumstances, produces positive results. In the experiments under consideration, the results were negative. But, as noted, such a conclusion surely cannot be generalized. In other words, we cannot say that what is true of the narrow concept of prayer in the experiment (*x, y, z*) is also true of the broader, more general concept of "prayer". It seems that CJC are averse to any scientific evaluation of prayer at least in part because it could lead to the broad and possibly erroneous conclusion that prayer is always ineffective. But this conclusion is one that few good scientists make.

The fact that one cannot make a broader conclusion about the efficacy of prayer based on individual experiments does not mean that the data gleaned from individual

experiments are not useful or informative. Or that a scientific evaluation of prayer could not lead to a narrow conclusion pertaining to the individual study-at-hand. But recall CJC's assertion above that prayer in one context might not prove scientifically effective while prayer in another context might be effective. Perhaps CJC could respond to my claim by taking the opposite approach with regards to the "natural" experiments: Let us assume that one experiment does indeed show that music affects plant growth. It is still quite likely that another experiment will show that it is ineffective. Again, this difference is due to the fact that the contexts are different between the experiments. Because music is a multi-faceted construct, experiments on music can take various forms. Thus, experimentation of this sort is problematic. Again, when you experiment on a construct as broad as something like "music" you can never rely on the results, positive or negative.

But this variation is not a problem with scientific evaluation. Rather, it is to be expected. Sure, one experiment may lead to a positive conclusion and another lead to a negative. But both do so within the context of their experimenting. Perhaps country music played from a radio affects growth while opera music sung live does nothing. By incorporating these different facets and limiting our conclusions to narrow conclusions about the context of the experiment, scientific evaluation of music and plant growth can still be useful. Nowhere is there a general conclusion about the effectiveness of "music" on plants. It is only when we consider the construct generally ("music" instead of "country music" or "live music") that we might run into difficulties.

Still, we might wonder: What if you could *never* have the same context between two experiments with a construct like prayer? In other words, what if one prayer experiment would have context (*a,b,c…n*) while every other experiment on prayer would be at least slightly different? The practices in every experiment would count as prayer because "prayer" has no universal definition, but no two practices would be the same. If that is the case, is CJC correct in saying that prayer is scientifically unevaluable or, at least, not very useful? What good is data on the efficacy of a one-time practice that is limited to the confines of the experiment itself? The next time prayer is done, the context will be different.

The reason why such data remains useful is that data does not exist in a vacuum. Rather, it is aggregated and compiled. It is true that, as noted previously, the negative data from one experiment does not allow us to make a broader claim that *all* prayer is ineffective. However, the compilation of data from multiple experiments does allow us to draw *tentative*

conclusions on practiced prayer effectiveness. And these tentative conclusions are indeed useful. For example, we might say that prayer, as it is generally practiced in its varying forms, does not appear to be effective. No variation of prayer under study has produced positive results.

I will now propose counter-arguments to my responses based on additional arguments given by CJC in their paper. I begin by examining what CJC see as incorrect assumptions about intercessory prayer.

6.4.3 CJC's Counter-argument: Construct Invalidity from Incorrect Knowledge

Thus far, we have examined the charge that construct validity in experiments on intercessory prayer is poor because science has *limited* knowledge of the concept of intercessory prayer. Prayer can manifest itself in many ways. In choosing only one to focus on, science ends up with too limited an understanding of the cause under evaluation. However, in their paper, CJC also argue that poor construct validity can be the result not just of inadequate knowledge of the cause but also of *incorrect* assumptions about the cause. For example, science generally assumes that intercessory prayer is administered like antibiotics. A dose of prayer is given for a particular ailment or injury. Science also generally believes that prayer should elicit results in the same way medicine does. But these assumptions lead to problems. As CJC put it,

> The scientific explication of the construct *prayer* also contradicts many spiritual and theological conceptions of prayer. It contradicts many individuals' habits and beliefs regarding prayer and faith. For example, …[w]hen Catholics each Sunday at Mass offer a communal special intention to God to "heal all who are sick and suffering," is the probability of efficacy higher or lower than a single Catholic praying for a single individual (who would also be included in "all who are sick and suffering")? How about a group of Catholics praying for a single individual? These questions are not even askable, let alone answerable (Chibnall et al., 2001, p. 2531).

The authors suggest that a scientific construct of prayer contradicts the commonly-held notion of prayer. Science, they argue, needs to be able to see direct correlations resulting from prayer practice. In testing prayer scientifically, we need to be able to see if, for

example, more prayer is more effective. But, they argue, what you are doing if you allow for such measurements contradicts many conceptions of prayer.

But a scientific evaluation of prayer is under no obligation to establish these types of correlations. It is enough that such evaluation simply measures effects. There is no reason why science would need to be able to establish the wide-ranging implications of prayer to effectively study it. This is as true in experimentation on the ostensibly supernatural as it is in experimentation on the natural. For example, returning to antibiotic research, we can imagine research done on the effectiveness of a particular antibiotic on ailment X. It is not a requirement of the causal construct "antibiotic" that it be able to tell us whether *more* antibiotic is *more* effective as a treatment for ailment X. If, during experimentation, we happen to discover this information, all the better. However, the ability to answer this question concerning correlation is not necessary for the construct to be valid and effective experimentation to take place. The same holds true for prayer.

6.4.4 CJC's Counter-argument: Intercessory Prayer Does Not Meet Hempel's Testability Requirement

The authors go on to argue that prayer needs to be better defined to have the required "testability". Citing Hempel's basic requirements for scientific examinations (Hempel, 1966), CJC state,

> [A] given explanation must be empirically testable, in principle if not in reality. That is, a scientific hypothesis must have certain "test implications," such that empirical findings can either support it or contradict it… Hempel offers the example of entelechies or "vital forces" as explanations for the "organic directiveness" that occurs in embryonic development. Experiments that demonstrate repair of embryonic damage can and have been done. Yet a hypothesis that this process is a function of entelechies would be neither supported nor contradicted by the experimental results because the entelechal explanation cannot make differential predictions regarding when these forces will manifest and in what manner they do their directing. The vital force is just "there… Distant intercessory prayer is no more testable than entelechies in this sense: God is there when effects are found or not there when they are not. To derive specific implications of such a hypothesis is not possible. It is

> akin to qualifying an explanation of the origin of species through evolution with the proviso that, while evolution may work within the principles of biology and chemistry, it is really God who directs it. The proviso, while potentially spiritually meaningful, is scientifically irrelevant (i.e., it is without explanatory relevance and testability) (Chibnall et al., 2001, p. 2531).

CJC are surely correct to point out that a study on prayer that yields positive effects would not be able to attribute those effects to God. Even assuming God exists and that He at least sometimes responds to prayer, it could be the case that a positive result occurs outside of God's immediate interaction. Likewise, a negative result from prayer does not signal the non-interaction of God. It may be that God produced the negative result. But, while we cannot attribute the effects to an agent, we can still separate the practice of prayer and hold it to be its own scientifically *observable* or *beginning* cause independent from any potential *non-observable, intermediate* cause such as God.[3]

In the same way, we might perform an experiment on the effectiveness of dancing to produce rain. It might be that, should rain-dancing prove effective, a subsequent, primary, non-observable cause of the rain exists alongside the prior, secondary, observable cause (dancing). Perhaps the dance inexplicably causes changes in wind patterns which, under certain conditions, results in precipitation. In that case, the primary cause of the rain is the mystically-induced wind. Thus, the observable cause is distinguishable from the unobservable primary cause. Additionally, the secondary cause, just like the primary cause, might be said to have its own value. Some might want to attribute the positive effect of the rain to the dancing (rather than the wind) and, in a sense, they would be correct to do so. But the authors fail to distinguish primary and secondary causes and, thus, conflate prayer with God as the same (primary) cause.

A consequence of this is that their evolution analogy in the quote above suffers from an incorrect comparison. CJC incorrectly compare intercessory prayer in scientific studies with God in evolution. In that analogy, they argue that God is scientifically irrelevant in studies of evolution because God is an untestable concept. Here God is meant to be analogous to prayer since prayer is, according to them, also untestable and irrelevant. To

[3] Causes might be distinguished, among other ways, temporally or, by order ("Prior/first cause" vs. "subsequent/intermediate cause"), by causal power ("secondary cause" vs. "primary cause"), or by our ability to evaluate them ("observable cause" vs. non-observable cause").

CJC, prayer should not be posited as a mechanism for healing just as God should not be posited as a mechanism for evolution. But the comparison of prayer and God is unjustified. In intercessory prayer, the prayer act is only the observable cause (while God is the intermediate, ultimate cause). Therefore, a proper analogy would have had the subsequent, primary, non-observable cause of the origin of the species (God) as analogous to the subsequent, primary, non-observable cause of healing (God) in prayer studies. Meanwhile, prayer, as the prior, secondary, observable cause of healing, must be analogous to the prior, secondary, observable cause of the origin of the species. This is not God but, rather, *evolution*.

To put it another way, in the evolution example, the observable cause is evolution itself. The effect is the origin of the species. The intermediate cause, if there is one, would be God. The authors rightly argue that this postulated intermediate cause is scientifically irrelevant. In the prayer studies, prayer is the observable cause. The effect is healing. The intermediate cause, if there is one, would be God. Thus, following the analogy, God should be considered scientifically irrelevant in the case of prayer studies not, as the authors' assert, the practice of prayer itself. Prayer, as the observable cause, is indeed relevant. We might call this argument, the argument that CJC are incorrectly conflating intercessory prayer and God, the Incorrect Analogy Argument.

Figure 6.1

Observable Cause (Scientifically Relevant)	**Non-observable/Intermediate Cause (Scientifically Irrelevant)**	**Effect**
Evolution	*God*	*Origin of the species*
Prayer	*God*	*Healing*

Both evolution and prayer can be tested for their effectiveness as observable causes. We then can attempt to draw conclusions as to whether evolution resulted in the origin of the species and whether prayer results in healing. Those conclusions might imply the existence of subsequent, primary, non-observable causes. However, those implications, as the authors note, may or may not be correct. For example, some might want to say that the lack of positive results in prayer studies says something about the non-existence of an intermediate cause (God). But this implied conclusion cannot be ascertained given the

evidence. The only conclusion we can confidently draw from such a study concerns the effectiveness of the observable cause (prayer).

6.4.5 CJC's Counter-argument to the Incorrect Analogy Argument: God is not Irrelevant in Intercessory Prayer

One possible response to the above Incorrect Analogy Argument is that, although God may be scientifically irrelevant in the case of evolution, he cannot be considered irrelevant in the case of intercessory prayer studies. This is because intercessory prayer, by definition, requires a relevant third-party intermediary deity to answer the request of the intercessor. Prayer without a relevant intermediary cause would not really be intercessory prayer. If this is the case, then God and prayer must be coupled together as one and the same causal construct. Contrary to my argument above, the combination of the two would not be incorrect. And, if God must be considered the causal construct, then we must say that the causal construct is invalid. It is imperative that we have at least some immediate experience with the causal constructs in experimentation. However, we have no immediate experience with God. Or at least no experience which can be scientifically quantified. It then would be the case that God/prayer, like entelechies, would fail to provide a testable hypothesis for experimentation. And if that is true, then science cannot evaluate prayer and Provisory Methodological Naturalism is false.

There seem to be at least a couple of ways to respond to this. First, we might simply concede that intercessory prayer does require God as a relevant intermediary cause. And, because God is an untestable construct, intercessory prayer is not scientifically evaluable. Having said that, we can still insist that *non-intermediary* prayer is scientifically evaluable. In other words, science could study the effectiveness of one person's non-petitioning prayer actions on the healing of a distant unaware individual. Such action would be the primary cause of any healing effects. No subsequent cause would be assumed to act. Of course, this would not answer the authors' specific claim regarding the problems of scientific evaluation of intercessory prayer. However, it would still be a scientific evaluation of a supernatural method or phenomenon. And, as such, it would at least serve as a rebuttal to Essentialism or the idea that science cannot evaluate any supernatural objects.

The second problem, though, is that it is not clear that such a thing as non-petitionary prayer even exists. If prayer inherently involves the petitioning of a third party, non-

intermediary prayer would be impossible. It may be that all prayer meant to affect other individuals simply *is* intercessory prayer. Non-intermediary practices would fall under some other supernatural category, like psychic healing. On top of this, there seems to be no effective method by which to know that no intermediary cause is involved. God or some other subsequent non-observable cause could still act and we would never know.

Another way to respond to the counter-argument that God and prayer must be coupled together as one construct is to hold that, even if it is the case that prayer does require a relevant third party, we can still test intercessory prayer's effectiveness. Again, per the above Chibnall et al. quote, intercessory prayer is untestable because we would not know if God were acting in the case of positive results or not acting in the case of negative ones and vice-versa. But allowing that God sometimes acts on prayers and sometimes does not fails to render studies of prayer effectiveness impossible. When we are measuring effects, the action or inaction of the intermediary cause will simply be what we measure. So, in allowing for a relevant intermediate God, we would be measuring, in effect, God's behavior. God may choose to act or he may choose not to.[4] The measurements would reflect his choosing. This is not outside the realm of possibility as we can easily imagine a natural correlate to this. For example, it is possible to evaluate the effectiveness of begging on one's knees in front of one's boss as a method for acquiring a raise even though sometimes the boss acts on such pleas and sometimes she ignores them entirely. In such a case, as with God, we would simply be observing and measuring behavior. Without feedback from the boss, we would not be justified in assuming that the begging had anything to do with getting or not getting a raise. But we could at least measure the effects of begging. Similarly, we could measure the effects of prayer (again, without requiring any correlation of practice to said effects).

6.4.6 CJC's Second Counter-argument to the Incorrect Analogy Argument: We Cannot Know Whether God Acts in the World

Finally, CJC might respond that there is a problem with my answer above. This problem is something I have already touched upon. I suggested above that we could measure the effects of prayer and that those effects would be measurements of God's behavior. However, there

[4] God's omniscience in conjunction with his omnipotence entails that a choice is made by him whether to act or not.

is no way of definitively knowing (outside, perhaps, of a miraculous violation of the laws of nature) whether God acts in the world. At least, there is no way of knowing that may be scientifically quantifiable. God could intervene and cause a result which might never be attributed to Him. Or, he may fail to intervene and the result might still be incorrectly attributed to Him. If this is true, then CJC are seemingly correct in saying that science cannot evaluate prayer. We cannot evaluate or measure God's behavior in the way I suggest above if we cannot definitively know when He acts.

To put it another way, since we cannot know when God acts, we cannot say, as I do above, that we are measuring God's behavior. Since the implication that God acted as the intermediate cause of the healing can never be confirmed, we cannot attribute any positive results to God's actions. Likewise, God cannot be blamed for inaction. While we can always confirm our boss as the proximate cause of our raise, we can never confirm God as the proximate cause of an instance of healing after intercessory prayer.

But the Provisory naturalist can easily respond to this problem. It seems clear that science would be measuring behavior *only if* there is a behavior to be measured (e.g, there is an agent who is *behaving* or, acting in response to prayer). If God does not exist, then, obviously, the question of whether God is acting is irrelevant. Put another way, measuring the effects of prayer does not *necessarily* mean measuring behavior. That would only be the case if a prayer-answering deity existed. But we do not know this to be true. Thus, it is possible that we can measure the effects of prayer without needing to attribute those effects to the actions or non-actions of a deity. All of this is to say that the problem here is not for the naturalist. The naturalist does not assume God as an intermediate cause and thus is under no obligation to attribute the effects to his behavior. The onus is on the supernaturalist who posits God. It is true that we cannot deduce from the positive effects of prayer that God was the cause of said effects. However, the scientific *evaluation* of intercessory prayer does not require the presumption that such an intermediate cause exists. In fact, as an impartial process, science should actively avoid such a presumption. Instead, we might simply say that, *if* God exists as an intermediate cause, *then* the effects would be a measurement of his behavior.

One might wonder how many of those who believe in the efficacy of prayer would follow CJC in accepting that science cannot evaluate prayer's effectiveness. Although it is strictly conjecture, I would think that a good portion of the people who hold that prayer

leads to desirable outcomes also believe that these positive results can be objectively (i.e., scientifically) measured. Again, this is only speculation. That said, it seems safe to assume that CJC's view is, at the very least, not universally held. Not all believers in the power of prayer think like CJC do. Of course, there are a fair number of supernaturalists who subscribe to Gould's non-overlapping magisteria and feel that science and religion should not or cannot intermingle (2.2). It is possible that some of these individuals would be sympathetic to CJC's argument and believe that science cannot evaluate prayer. And of course, even if some supernaturalists do think that the effectiveness is prayer is measurable by science, that fact alone does not make it so. CJC may be right and these supernaturalists wrong. Still, I believe it is reasonable to assume that, if prayer does have lasting effects on our world, then the prayer process itself should be evaluable.

In conclusion, because science does not require a thorough understanding of the mechanism behind prayer and because no problems arise from there being multiple methods and forms of prayer, we can assume that prayer is indeed a viable scientific construct. It does not, in other words, hold the privileged position suggested for it by the authors. The questions posed earlier in the chapter, then, are ones which scientific evaluation can address. We can test, for example, whether numerous prayers are more effective than a single prayer or whether prayers from individuals subscribing to specific religious faiths are more likely to generate positive results. Contrary to CJC's assertions, we can evaluate prayer and answer questions related to the practice. And although we can never ascribe positive results to an existing deity (or definitively infer the lack of a deity from negative results), we can still draw conclusions about the effectiveness of practices related to the act of praying. For example, people often implore multiple individuals to pray for a single person. By conducting experiments, we get a clearer picture of whether doing so is effective.

To say that questions like "Does having multiple individuals pray for a single person have a measurable effect?" and "Are multiple prayers more effective than a single prayer?" are "not even askable" is surely incorrect. But it is also telling. In the eyes of the authors, science is not only prohibited from evaluating any aspect of this supernatural phenomenon, it cannot even formulate the questions which evaluation would work to answer. To them, prayer seems to exist on a separate epistemic plane, unavailable to natural inquiry. Such an assumption is not only in error, it may even be dangerous if applied to other cases of the supernatural. Many questions regarding supernatural methods need to be asked lest harm be caused. Testing the effectiveness of various supernatural health remedies, for example, can

work to help people avoid spending precious time, money or energy on the application of useless treatments. If certain supernatural modes of healing are ineffective or even harmful, people need to know to avoid undertaking them in lieu of proven treatment. Refraining from testing such ineffectual methods under the misguided notion that they are simply untestable could cause great damage.

6.4.7 Applying the Responses to CJC to Other Narrow Arguments

I noted earlier that the potential exists for CJC's argument to be used as a defense against the scientific evaluation of other supernatural phenomena. It seems possible that one could make a separate argument that, say, ghosts are invalid constructs and therefore cannot be scientifically evaluated. Or a similar argument might be made regarding *qi*. Each of these arguments would be dealing with one phenomenon (ghosts, *qi*) in particular and, thus, would remain narrow in scope (as opposed to the broad argument that "*All* supernatural phenomena suffer from construct invalidity and are, therefore, scientifically unevaluable.").

I would argue that my supplied responses to CJC regarding prayer would also answer these other narrow arguments. Because science can evaluate all types of indefinable phenomena (6.4.1), it can as easily evaluate ghosts as it can intercessory prayer. Additionally, if a narrow argument is made that the practice of, say, crystal healing is an invalid construct because science would have incorrect knowledge about the concept of crystal therapy (6.4.3), then my earlier response can be given. Like CJC's assumption regarding science and prayer, it would be a mistake to assume that we need to know if *more* crystals result in *more* healing (or some similar hypothesis).[5] Various supernatural methods or phenomena might be substituted for prayer in these various narrow arguments regarding construct validity. However, they might all be answered in a similar fashion.

[5] Or, take homeopathy. Homeopathic medicine *can* be tested in the same ways antibiotics are. But just as it is not the case that we must know whether more Antibiotic X is more effective on Ailment Y, it is not the case that we would need to know whether more homeopathic medicine is more effective in a proposed homeopathic treatment. *If* such treatments were to ever prove effective (as certain antibiotics have been), *then* we could readjust the experimentation to see if more of a proven effective homeopathic cure is more effective or not. Such testing has indeed been done with effective antibiotics. The problem for homeopathy is that no homeopathic cures have yet proven to be effective.

6.5 Conclusion

I began this chapter by differentiating between broad arguments against Provisory Methodological Naturalism which hold that science is unable to prove the veracity of any supernatural phenomenon and narrow arguments which hold that science cannot prove particular supernatural phenomena. Thus far, I have mainly focused on broad arguments. However, it may be that narrow arguments offer a greater challenge to the Provisory view. Proof that one phenomenon lies outside scientific evaluation is enough to disprove the Provisory view. If any narrow argument is true, then Provisory Methodological Naturalism is proven false.

Fortunately for the Provisory view, the narrow argument examined in this chapter does not hold up. CJC's criticism of scientific evaluation of intercessory prayer is answered once we recognize that science has a history of accurately evaluating what might be thought of as indefinable phenomena. Ambiguity has never been a deterrent to scientific evaluation. Additionally, the reasons given by CJC for why prayer is an invalid construct might just as easily be applied to other phenomena (such as music) which we know are scientifically evaluable. Having said that, CJC may disagree with this last point. They may argue that we cannot confirm that music and other similar constructs are evaluable. These concepts are not sufficiently defined and, therefore, are not valid constructs. However, my response to this counter-argument was that the constructs *are* sufficiently defined in the context of the experiment. Every experiment has a unique set of parameters, often the result of the subject of the experiment having unique and varying properties. These parameters very specifically define the subject under study (Christian prayer, in a private residence, kneeling, etc.). Data may be gleaned from these studies and, in aggregation, such data can tell us useful things. Finally, I argued that CJCs reasons for why prayer cannot be evaluated by science cannot be used in other narrow arguments. We cannot say, for example, that science cannot evaluate crystal therapy for the same reasons it cannot evaluate prayer. My response to the latter works with the former.

7. Naturalism, Scientism, and a Pluralist Provisory Methodological Naturalism

7.1 Introduction

In this closing chapter, I will examine one last potential problem for Provisory Methodological Naturalism. This problem concerns the category of views which fall under the heading of *scientism*. Scientism is, roughly, an exaggerated overconfidence in the abilities of science. Such overconfidence can manifest in several ways. People guilty of scientism assume that all elements of reality come under the umbrella of the sciences (or even just one science). Or they might believe that there are no other forms of knowledge other than scientific knowledge. Accusations of scientism have become increasingly prevalent in the wake of recent publications by the so-called "New Atheist" writers, including Sam Harris, Daniel Dennett, Christopher Hitchens and Richard Dawkins. Their work, some argue, contains numerous examples of the unjustified aggrandizement of science at the expense of alternative ways of knowing (Pigliucci, 2013b). The term is most often used as a pejorative; Scientism is generally something to be avoided.[1]

The problem facing Provisory naturalists is that they can be accused of scientism based on the methodological naturalism thesis. The supernaturalist can argue that methodological naturalists, as I have defined them, are guilty of scientism given that they hold science to be the best and only method for discovering reality and what exists. This belief represents an overconfidence in science. To hold that science is the only method for discovering reality is presumptuous. If the supernaturalist is right, then both Essential *and* Provisory methodological naturalists are guilty of scientism since both subscribe to the thesis of methodological naturalism.

Unfortunately for the methodological naturalist, the supernaturalist is right. When taken a certain way, the thesis that science is the best and only way to discover reality *is* scientism. As I noted in Section 2.5.1, the methodological naturalism thesis can be taken at least two different ways. The first way is to hold that science is the best and only method

[1] Although at least one philosopher, Alex Rosenberg, has embraced the term as a descriptor for his own view. Rosenberg refers to his combined belief in physicalism and moral nihilism as "scientism". While his view *is* scientistic, I am not sure that I agree with his appropriation of the term. Rosenberg should consider that, despite his appropriation, most people still see scientism as over-confidence in science. Rosenberg himself does not think that science is *over*-confident. Rather, he believes it is *justifiably* confident (Rosenberg, 2012).

for discovering reality but that there are things in reality which science cannot explain. If the naturalist chooses to interpret the methodological naturalism thesis this way, she can avoid scientism. The second way is to hold that the only things which exist are the things which science describes. If the naturalist interprets the thesis this way, she succumbs to scientism. So, to avoid scientism, the Provisory naturalist needs to clarify her acceptance of the former approach. As it stands, the Provisory form of methodological naturalism fails to clarify this in its definition and, thus, leaves itself open to accusations of scientism.

To simply say that science is the only practice that can discover or explain reality places too much confidence in science. It assumes that science can explain certain elements of reality which, in truth, are outside of its domain. Additionally, it discounts other valid practices which also help us explain reality. These include the practices of morality and art, for example. Science cannot explain things like artistic truth. We cannot determine what qualifies as art by referring to physics. Additionally, things like moral value do not seem to reduce to physical theory. It is the practices of art and morality themselves, not science, which help us explain these elements and answer questions related to them. I will discuss more how this is done later in this chapter.

Before going further, it may be important to note that an accusation of scientism is not itself an argument. An accusation of scientism is merely an assertion that an individual is overconfident in science's ability to answer certain questions. Physicalism is often called scientism but this accusation alone does not go far in proving that non-physical things exist. Opponents of physicalism need to provide a separate argument for why physicalism is false. Similarly, the very fact that some methodological naturalists are overconfident in science does not affect the truth of their arguments for methodological naturalism. We would need to go a step further and show *why* methodological naturalism represents overconfidence in science in order to prove it false. That said, the fact that the methodological naturalist may be guilty of scientism does at least *detract* from methodological naturalism and, ultimately, Provisory Naturalism as well. The main reason why Provisory Naturalism is attractive is that the Provisory naturalist, unlike the Essentialist, avoids dogmatic commitment to ontological naturalism. But if the Provisory naturalist were to assume a scientistic approach, she would be accepting a dogmatic commitment to science. The Provisory naturalist should avoid such inconsistency. Since she is willing to question the unfalsifiability of ontological naturalism, she should do the same regarding the capabilities of science.

But the problems associated with scientism go beyond inconsistency. Scientism poses a real danger because it uses the legitimate practice of science to justify unsupported metaphysical conclusions about the world. Richard N. Williams writes that "[S]cientism itself does no good service to science *qua* science. Rather, it attempts to hijack science to support metaphysical commitments in which science has no particular interest, and to which it owes no particular debt" (Williams and Robinson, 2016, p. 3). Scientism is more than just a practice, it is an ideology, and a problematic one at that. In only looking to science for answers, scientism dismisses other valid modes of inquiry (e.g., philosophical, artistic).

In this chapter, I will outline what the Provisory methodological naturalist needs to do to avoid falling prey to scientism. The structure of this chapter is as follows. In Section 7.2, I will further define scientism. Varying definitions of the term have been proposed in the literature. I will compile a few of them here to sketch out a broader description of the concept. In Section 7.3, I will re-examine the Essentialist and Provisory forms of methodological naturalism in light of the conclusion that they are scientistic. I will show that, given their methodological approach, Essentialism is unavoidably scientistic while Provisory Naturalism is not necessarily scientism. I will then outline what is required for the Provisory naturalist to escape the charge. This involves revising the definition of methodological naturalism. At least it involves revising the formulation of it that is used in the Provisory Methodological Naturalism thesis. It also involves presenting a plausible method by which the Provisory naturalist can explain elements of reality like art and morality without insisting that they reduce to scientific explanation and without invoking supernatural explanations. In Section 7.4, I will examine what such a naturalistic account of reality looks like. I argue that the best approach for explaining reality naturally, if not entirely scientifically, is an approach called pluralism. I conclude that the Provisory naturalist should adopt a pluralist approach to explain reality. This pluralist approach is to coincide with the Provisory view that science can provisionally evaluate supernatural claims.

7.2 Scientism Defined

In the Introduction to Richard N Williams and Daniel N. Robinson's book, *Scientism: The New Orthodoxy*, Williams describes four tenets of scientism:

(1) "…[O]nly certifiably scientific knowledge counts as real knowledge. All else is mere opinion or nonsense."

(2) "…[T]he methods and assumptions underlying the natural sciences… are appropriate for all sciences, including, prominently, the social and human sciences. A corollary doctrine is that the arts, if they seek to be more than myth and self-expression, must somehow be brought under the umbrella of science."

(3) "Scientism exudes and promotes an exaggerated confidence in science… to produce knowledge and solve the problems facing humanity."

(4) "Scientism makes metaphysical claims… Scientism assumes and requires a naturalist, materialist, rather mechanistic metaphysics" (Williams and Robinson, 2016, p. 6–7).

Per Williams, a view is considered scientism if it assumes that science is the only source of knowledge, that other disciplines ultimately reduce to science, that science can solve all our greatest problems, or that a naturalistic metaphysics is required by science. Regarding this last point, it is important to note that Williams does not suggest that a general acceptance of "naturalist, materialist, rather mechanistic metaphysics" qualifies as scientism. He does not claim in (4) that anyone who subscribes to a naturalist metaphysics is guilty of scientism. This would be too strong an assertion. Rather, he claims that scientism is the belief that *science* requires acceptance of a naturalist metaphysics. Any individual who assumes that science requires a naturalistic metaphysics is guilty of scientism.[2] I will return to this point in the next section when I discuss the Essential and Provisory views along with scientism.

Some might claim that the topic of scientism is more of a cultural debate than a philosophical one. They might point out that while certain philosophical views like physicalism and naturalism might be labeled scientistic, scientism itself goes beyond philosophy. Many of the primary figures in the debate are scientists or popularizers of science like Dawkins, Neil deGrasse Tyson, and Bill Nye. These people are not philosophers. Besides this, much of the discussion about scientism takes place outside the

[2] Williams confirms this when he writes, "Science does not require that naturalist, materialist metaphysics be true in order to proceed in its project of gathering and reporting empirical findings" (Williams and Robinson, 2016, p. 4). For Williams, it is science that must remain agnostic with regards to ontology or metaphysics, not the individual. The Provisory naturalist should follow Williams insofar as she should hold that science must not require ontological naturalism. But the Provisory naturalist also recognizes that, just because science does not require naturalism, this does not mean that science must be agnostic about ontological naturalism. Science can *provisionally* pronounce on ontology.

realm of academic philosophy and many of the views labeled as scientistic concern philosophy's irrelevance compared to science.

All of this is true. However, while the concept of scientism has become a popular topic outside of philosophy, there is no doubt that it remains a philosophical issue. The views given by the above non-philosophers remain philosophical in nature. To propose that science is the primary or only source of real knowledge is to make a philosophical argument. It is, therefore, philosophy's job to question this as well as to answer any charge of irrelevance. Philosophers recognize this and so, as the number of instances of supposed scientistic thinking has increased, so too has the amount of philosophical work being done on the subject.[3]

7.3 Essentialism, Provisory Naturalism, and Scientism

We know that both forms of methodological naturalism (Essential and Provisory) which utilize my definition ("…science is the best and only method for discovering the properties of reality…") can fall prey to scientism. Holding that science alone discovers reality can amount to an overconfidence in the practice of science. There are certain elements of reality, things like art, love, poetry, and morality, which cannot be reduced to scientific theory. Our goal in this chapter is to resolve this issue, thereby allowing at least the Provisory naturalists to escape the charge of scientism. Unfortunately for the Essentialists, even if we are successful in fixing the above problem, their view will remain scientistic. This is because Essentialism is an example of Williams' tenet (4) above.

We can recall from Section 2.5.1 the two approaches to the methodological naturalism thesis ("Science is the best and only method for discovering the properties of reality and what exists") The first approach is to take the thesis to mean that reality is only what science says. In other words, there are no elements of reality which science does not explain. So, a proposed element of reality is either explainable using science or it does not really exist. This is the approach the Essentialist takes. The Essential methodological naturalist holds that science is the best and only method for discovering reality. From this, she assumes that science's reach in the natural world is exhaustive. She then assumes that science is limited in that it cannot evaluate supernatural claims. Together, these beliefs lead

[3] Some examples include (Mizrahi, 2017; Pigliucci, 2015; Williams and Robinson, 2016).

the Essentialist to conclude that only natural things exist and that ontological naturalism is unfalsifiable. Thus, the Essentialist holds that science requires a naturalist metaphysics or, (4). And because she holds (4), the Essential methodological naturalist is guilty of scientism.

Of course, the Essentialist might choose to follow the path that I will shortly set out for the Provisory naturalist. She might revise her assumption that science is the best and only method, etc. in an attempt to avoid (4). But if she does that she will have no basis on which to assume that science is exhaustive and that ontological naturalism is unfalsifiable. In short, she will cease being an Essentialist. Thus, there is no way for the true Essentialist to avoid scientism.

The second approach to the methodological naturalism thesis is to hold that science is the best and only method to discover reality, etc. but that there are elements of reality which science cannot explain. In other words, science is the best and only method but it is not exhaustive. This was the approach recommended for the Provisory methodological naturalist. By not assuming that science describes all of reality, the Provisory naturalist avoids drawing the conclusion that science is exhaustive and ontological naturalism is unfalsifiable. Thus, she does not hold that science requires a naturalist metaphysics (4).

But just because the Provisory naturalist avoids (4), this does not mean she is safe from accusations of scientism. There are a couple of things she needs to do yet. The first thing she must do is revise her definition of Provisory Methodological Naturalism to reflect her approach to the methodological naturalism thesis. This will clear up any ambiguity about the Provisory naturalist's view on the role of science in explaining reality. As noted previously, such revision is impossible for the Essentialist. The Essentialist cannot stray from the original methodological naturalism thesis or else she will have no justification for her unfalsifiable ontological naturalism. But revising this definition is easy for the Provisory naturalist to do. The Provisory naturalist is not as constricted. The Provisory Methodological Naturalism thesis will not face contradiction if the methodological naturalism thesis element is revised.

To begin our attempt at revision, we might first recall the original methodological naturalism thesis. Per our original definition, the function of science is to discover reality.

> *Methodological naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists.

One way to revise the definition of methodological naturalism for the Provisory naturalist is to simply assume the Provisory Methodological Naturalism stance outlined in Section 2.5.1. In other words, we simply add the stipulation that some elements of reality cannot be known by science. Science is the best and only method for discovering reality. However, there are some things, like morality and art, which cannot be explained using science. Our revised definition would be [Changes in bold]

> *Methodological naturalism*: The thesis that science is the best and only method for discovering the properties of reality and what exists **but that there are elements of reality which science cannot explain.**

This amended definition allows us to keep science as "the best and only method". At the same time, this new definition admits that science is limited. This amended definition can then be distinguished from the obviously-scientistic version which holds that science is the best and only method for discovering reality and *only entities described by science exist*.

While this amended definition is a step in the right direction, it is not a perfect solution. For one thing, we are left to wonder how the elements of reality which are unexplainable by science (e.g., art, morality) might be explained. The naturalist holds that these elements are natural things. Therefore, they all must have some sort of natural explanation. But this definition fails to acknowledge this point or provide any information as to how these explanations might come about. So instead, we might try a different approach. Again, we can begin with our original definition and go from

> *Methodological naturalism*: The thesis that **science** is the best and only method for discovering the properties of reality and what exists.

to

> *Methodological naturalism*: The thesis that **natural methods** are the best and only methods for discovering the properties of reality and what exists.

This change broadens the number of methods and practices which might be used to explain reality while still limiting them to natural methods. This way, natural practices like morality which stand independent of science might be utilized to explain certain aspects of reality. Additionally, natural forms of knowledge other than scientific knowledge might be considered legitimate. This would include, for example, moral and artistic knowledge. Meanwhile, we get to retain science as a valid method for discovering reality since it is one

of the natural methods for doing so. Provisory Methodological Naturalism can then be defined as

> *Provisory Methodological Naturalism*: The thesis that **natural methods** are the best and only methods for discovering the properties of reality and what exists and that science can *provisionally* evaluate supernatural objects.

With this revision, the Provisory naturalist avoids the charge of scientism. In acknowledging that there are natural methods or practices which are not science and that these non-science natural methods might also discover the properties of reality and what exists, the Provisory naturalist can no longer be accused of being overconfident in science. Furthermore, since Williams' four tenets all refer only to science (rather than natural methods), the Provisory naturalist is no longer in danger of holding a view which corresponds to (1-4).

However, there is one more thing that the Provisory naturalist must do. In revising our definition of methodological naturalism, we have gone from holding that one natural method or practice (science) explains all of reality to holding that several methods or practices explain all of reality. The Provisory naturalist needs to give a plausible and coherent account of how these other methods or practices do this. Such an account will need to provide natural explanations for elements of reality which science cannot explain. So, it will need to show how we might answer moral questions, for example, without a) invoking the supernatural or b) reducing those elements to scientific theory. Avoiding (a) allows the Provisory naturalist to remain a naturalist Avoiding (b) allows the Provisory naturalist to avoid scientism. We should also note that the Provisory naturalist only needs to provide a valid framework by which things like morality might have a natural explanation. In other words, we only need to show that the revised Provisory view is coherent. The Provisory naturalist is under no obligation to *prove* that morality does not have a supernatural origin, a task that is likely impossible anyway.

7.4 A Natural and Non-Scientific Framework for Explaining Reality

In his paper, *Varieties of Twentieth Century Naturalism,* John Shook attempts to present an exhaustive list of the many kinds of modern naturalistic views. He begins by describing seven viable naturalism options but eventually whittles the seven down to three "great naturalisms". Each of these great naturalisms can be thought of as frameworks by which the naturalist explains reality. The first great naturalism is *Reductive Physicalism*. Reductive

Physicalism holds that physics is the best and only method for discovering reality. Reality is only what physics describes and all things are reducible to the physical. The second great naturalism is *Non-Reductive Physicalism*. Non-Reductive Physicalism prioritizes physics but thinks that things described by the other physical sciences also exist. These things described by the other physical sciences are theoretically reducible to physics. Non-Reductive Physicalism does hold that *some* elements of reality, like mental states, are not reducible to physics. However, these non-reducible elements still supervene on processes described by the physical sciences (Shook, 2011, p. 10).

Both Reductive Physicalism and Non-Reductive Physicalism have their adherents. However, neither will work for our purposes here. The Provisory naturalist should seek out a framework that not only explains reality naturally but avoids scientism as well. Both physicalisms do offer natural explanations of the world. However, they also assume that one science ultimately explains everything. All of reality, according to physicalists, comes under the umbrella of physics. Reductive and Non-Reductive Physicalism are the type of views referred to in Williams' second tenet of scientism. Thus, the Provisory naturalist who is looking to avoid scientism will need to look at the third option.

The third great naturalism is *Perspectival Pluralism*. Perspectival Pluralism differs from physicalism in one important way. While physicalism holds that the truth about reality can only be seen from the perspective of physics, Perspectival Pluralism holds that getting an accurate picture of reality requires multiple perspectives. Science is helpful but it is also limited. According to Shook

> Perspectival Pluralism concludes that the sciences are unable to fully explain experience and the mind, yet it also respects how the sciences can cohere with, and frequently illuminate, much of experience and the mind. Perspectival Pluralism finds that experience and scientific knowledge present multiple perspectives upon the same reality. The first-person situated and subjective perspective of consciousness is neither inexplicable nor incongruent with the third-person objective knowledge of the sciences, since all experience and knowledge is embedded in situated contexts. Our mental lives are correlated to some degree with nervous processes, scientific knowledge grows from our careful observations of the world, and our experiences of the world can be usefully coordinated with scientific

> knowledge. Appreciation for the many vital and practical relationships and interpenetrations among experiences and scientific knowledge inspires the Perspectival Pluralist to postulate one natural world that experience and science both reveal (Shook, 2011, p. 12–13).

The Perspectival Pluralist is happy to accept a great deal of autonomy among the various scientific and social or cultural practices. She does not look to reduce the findings of fields like sociology or anthropology to any of the "harder" sciences like biology or physics. Additionally, the Perspectival Pluralist will recognize these various perspectives as equally valid. The perspective of the neuroscientist who examines the brainwave patterns of Patient X is equally as important and informative as that of the psychologist talking to Patient X. They are different perspectives on the same thing, namely the brain activity of Patient X.

The Provisory naturalist should adopt Perspectival Pluralism as the best approach to explaining reality. Perspectival Pluralism allows the Provisory naturalist to fulfill the second obligation noted above. It provides her with a method by which to explain elements of reality like morality without a) invoking the supernatural or b) reducing those elements to scientific theory.

7.4.1. Perspectival Pluralism

As previously noted, Perspectival Pluralism is happy to accept a substantial amount of autonomy among cultural projects. Naturalists who are Perspectival Pluralists hold that there are many autonomous cultural practices (of which science is just one) with equally valid perspectives of reality. Naturalists who are not Perspectival Pluralists, such as the physicalists, do not like the idea that there could be so much autonomy. Physicalists deny the claim that there are other perspectives which are equally as valid as physics.

The stricter of the physicalists (those who reduce all elements of reality to physics or even eliminate elements which are not referred to in physics) do not recognize the autonomy of the other natural sciences (e.g., chemistry, astronomy, geology). Nor do they recognize the autonomy of the social sciences (e.g., economics, psychology, anthropology, sociology). Other, less-strict naturalists *do* recognize the autonomy of the individual natural

sciences but do not recognize the autonomy of the social sciences.[4] Perspectival Pluralists believe that both of these approaches are too limiting. They believe that naturalists should recognize the validity of the various social science perspectives along with the natural or physical ones. But they also believe that naturalists should also go a step further and recognize that other disciplines, such as those grouped under the Humanities (e.g., Arts, Philosophy), offer valid perspectives on reality. It is a mistake to assume that the arts should be brought under the umbrella of science as depicted in Williams' second tenet.

Shook has alternately referred to Perspectival Pluralism as both a *feature* and a *technical classification* of a school of philosophy known as *Pragmatic Naturalism* (Shook, 2009, p. 92; Shook, 2013, p. 580). Whether Perspectival Pluralism is an element of Pragmatic Naturalism or one form of it, the two views undoubtedly complement each other, as we will soon see. Pragmatic Naturalism or, Pragmatism was developed in the United States during the late nineteenth century. Among its adherents were Charles Pierce, William James, and John Dewey. A major component of Pragmatism is anti-foundationalism or, the view that there is no ultimate ground for inquiry or knowledge. The Pragmatists believe that there is no foundational rationalism (Rorty, 1982).

Pragmatic naturalists hold that we do not need a foundational metaphysics to justify cultural projects like science, art, and morality. Instead, these things stand autonomously with no a priori justification. Furthermore, these projects have their own set of standards by which we (those who practice the disciplines noted above along with society-at-large) may work to answer the questions which science cannot. These questions include, "What is the nature of love?", "What qualifies as art?", and "Is there such a thing as objective moral truth?" From all of this, we can see that the Perspectival Pluralist assumption ("Explaining reality requires the use of multiple perspectives") and the Pragmatic naturalist belief ("Cultural projects [i.e., perspectives] have their own standards and stand autonomously") fit well together. For our purposes here, I will refer to the combination of these two views simply as *pluralism*. I will refer to the naturalist who holds pluralism as a Pluralist.

[4] Shook notes an interesting divide among the naturalists who only see the physical sciences as definitive and those who see the biological and social sciences along with the physical sciences as definitive. "Because the biological and social sciences have traditionally used some methodological principles and modes of causality that depart from the physical sciences, many naturalists want to draw a line between trustworthy physical sciences (physics, chemistry, geosciences, astronomy, cosmology) and suspicious biological and social sciences" (Shook, 2011, p. 5).

The Pluralist believes that the various non-science cultural projects (e.g., art, morality) remain wholly natural despite being separate from science. This may be more superficially obvious in some cultural projects than in others. For example, it may be more obvious that there is nothing supernatural going on in the cultural project of art than in the cultural project of morality. It appears that there are fewer appeals to supernatural explanations for artistic truth than for moral truth, for example. Of course, there may be some arguments that something like objective beauty requires a supernatural explanation. But arguments that objective morality requires the supernatural are far more common. In any case, the Pluralist will argue that appeal to a supernatural or a priori foundation for both art and morality is unnecessary. In the case of art, art has its own standards for what qualifies as art and artistic truth.

The practice of morality also has its own standards. However, the Pluralist would do well to at least provide a plausible account of how morality originated in human social practices and not via any supernatural means. She might attempt to do so in the following way. It seems plausible that cultural projects like morality evolve as human beings work to study and improve the standards associated with them. Humans improve the standards of morality by using the tools of science (While practices like art and morality are autonomous and separate from science, they still utilize many of the tools we often associate with scientific practice). It is possible that, as human beings evolved, we used the tools of observation, experimentation, and inference to develop a shared system of morality.[5] Since human beings are intensely social creatures, a shared morality would allow us to thrive while sharing the same space in communities (Kitcher, 2012). Our moral system may have evolved entirely on its own. Or it may be that elements of morality were invented by human beings. Either way, the Pluralist can tell a plausible and entirely naturalistic story about the development and practice of morality.

Pluralism is the perfect choice for the Provisory naturalist seeking to avoid scientism. In pluralism, she has a view that satisfies the requirements mentioned above; The Provisory naturalist can now explain elements of reality like art and morality without reducing them to a scientific theory or invoking the supernatural. Since pluralism avoids reduction, the Pluralist Provisory methodological naturalist avoids scientism. And since

[5] One might develop the argument that, as a universal moral system, it may be objective and not relative.

pluralism avoids invoking the supernatural it remains compatible with ontological naturalism.

7.5 A Pluralist Provisory Methodological Naturalism

In my defense of Provisory Methodological Naturalism, I argued that the methodological naturalist should avoid placing certain limits on the discovery of reality. The methodological naturalist should not limit scientific discovery to just natural things. Rather, she should hold that science has the potential to discover supernatural things. In this chapter, I have attempted to show that the methodological naturalist should also avoid placing certain limits on her explanation of reality. The methodological naturalist should not assume that science alone is the best and only way to explain reality. This is because there are elements of reality which cannot be reduced to scientific theories. These elements have their own autonomous standards and are independent of science. Things like art and morality are independent cultural projects. That said, while they are separate from science, these projects remain entirely natural. They do not require any supernatural explanation.

We can now combine our preferred approach to discovering reality with our preferred approach to explaining reality. In other words, we can combine Provisory Methodological Naturalism with pluralism. We can start by recalling our revised definition of methodological naturalism:

> *Methodological naturalism*: The thesis that natural methods are the best and only methods for discovering the properties of reality and what exists.

And, again, our revised definition of Provisory Methodological Naturalism consists of the revised methodological naturalism thesis as well as the assertion that science does not limit discovery to natural things:

> *Provisory Methodological Naturalism*: The thesis that natural methods are the best and only methods for discovering the properties of reality and what exists and that science can *provisionally* evaluate supernatural objects.

Having changed our definition of Provisory Methodological Naturalism to incorporate the new definition of methodological naturalism, the Provisory naturalist now needs to provide a naturalistic account of how to explain reality. She must do this without reducing all of reality to science and, thereby, falling prey to scientism. This is where

pluralism comes in. Pluralism incorporates the Perspectival Pluralist assumption that explaining reality requires the use of multiple perspectives. We are not justified in explaining reality from the single perspective of physics or even science in general. Pluralism also incorporates the view, associated with Pragmatic Naturalism generally, that the cultural practices which provide these perspectives each stand autonomous and have their own standards. Thus, the Pluralist believes that certain elements of reality, like art and morality, which do not reduce to science are self-explanatory as independent, autonomous, and wholly natural cultural projects.

Pluralism and Provisory Methodological Naturalism together form a *pluralist Provisory Methodological Naturalism*. The pluralist Provisory naturalist holds the following: Natural methods are the best and only methods for discovering the properties of reality and what exists. Supernatural methods are inefficient. Among the natural methods used for discovering reality is the method of science. Science is one of the best tools we have for discovering the properties of reality and what exists. Science has been incredibly successful in helping us navigate and learn more about our world. Additionally, science is not limited to only evaluating natural claims. It can evaluate supernatural claims as well. However, while it is enormously successful, science does have certain limitations. It cannot discover or explain *all* elements of reality. It cannot explain things like love, moral truth, artistic validity, etc., for example.

But, while these things are irreducible to science, this does not mean they have a supernatural explanation. We can acknowledge that art and morality do not have a scientific explanation while still believing them to be natural things (thereby allowing Pluralist Provisory Methodological Naturalism to remain compatible with ontological naturalism). We do this by pointing out that cultural projects like art and morality have their own autonomous standards and, like science, do not require any a priori explanation. We use these standards along with scientific tools like observation and experimentation to answer questions related to the various projects (e.g., "What is moral truth?") which are not answerable via any specific science (e.g., physics).

7.6 Conclusion

Supernaturalists and other non-naturalists may see methodological naturalism, as I initially defined it, as scientism. Scientism is overconfidence in science. The supernaturalist would

be correct to state that the thesis that science is the best and only method for discovering reality and what exists is scientism if that definition is taken to mean that only entities described by science exist. The Essential naturalist does hold this to be the case and is, therefore, guilty of scientism. The Provisory naturalist does not hold this to be the case. To avoid being accused of scientism, the Provisory naturalist must revise the definition of methodological naturalism incorporated in the Provisory Naturalism thesis.

The Provisory methodological naturalist also needs to be able to provide an account of how best to explain reality. Moreover, she needs to be able to provide a natural explanation for things like art and morality which currently resist reduction to physical theories. Merely assuming that they will eventually be reduced to science is scientism. Assuming that they have a non-natural explanation is supernaturalism. The correct approach for the Provisory methodological naturalist is to adopt pluralism. Pluralism recognizes that some elements of reality are not reducible to science. It also recognizes that the mere fact that these elements being non-reducible does not mean they must be supernatural or have a supernatural explanation. Furthermore, pluralism holds that these projects have their own autonomous standards and, like the cultural project of science, are self-explanatory. They require no outside a priori explanation for their existence. Cultural projects use the tools of science (observation, experimentation, inference) to evolve and improve. A plausible explanation for our system of morality, for example, is that it evolved as human beings in communities used the tools of science to expand and improve it. With Pluralism, we have an explanation for things like art and morality which utilizes neither a narrow reductionism nor supernaturalism.

Conclusion

Naturalists must admit that there are certain things we do not know and maybe cannot know about science. We do not know for certain whether science provides us with a reliable view of the external world, for example. We have no way to prove beyond a shadow of a doubt that the scientific findings accurately represent the world as it truly is. Likewise, we cannot know what we will eventually discover to exist. Prohibiting supernatural objects or phenomena from ever existing in our world by stating that science is unable to observe such things is the wrong approach. Furthermore, we are not justified in re-classifying supernatural objects as natural objects should they ever be discovered. Because we cannot pronounce with any certainty on these things, naturalists must assume that their methodological naturalism and ontological naturalism is fallible. One of the goals of this project has been to highlight the fact that many naturalists fail to recognize the fallibility of naturalism and to show why it is vital that they should. Naturalists should adopt a methodology which allows them to revise their methodological and ontological positions should the need arise.

I began this project by examining the meaning and relationship between natural and supernatural methodologies and ontologies. This was the subject of Chapter One. Following this, I examined a naturalistic methodology which does not allow for the sort of revision referred to above (Essential Methodological Naturalism) before introducing one that does allow for it (Provisory Methodological Naturalism). These methodologies were covered in Chapters Two and Three respectively. Chapters Four through Six examined hypothetical problems for my preferred methodology, Provisory Methodological Naturalism. In Chapter Four, I endeavored to show that the use of inductive reasoning to justify the automatic naturalization of supernatural objects fails. The Essentialist cannot insist that Provisory naturalism is false because all discovered objects have been and, therefore, will be natural. In Chapter Five, I attempted to prove that a valid way to distinguish supernatural and natural things does exist. As such, the Essentialist cannot argue that there is no distinguishing criterion and, thus, no way to falsify ontological naturalism. Once again, the Essentialist must hold that ontological naturalism is unfalsifiable. But the Provisory naturalist holds that it may be proven false. In Chapter Six, I examined the problem of scientific work and Provisory naturalism. Essentialists and some supernaturalists believe that scientific work cannot be done to prove the existence of truly supernatural things. But the Provisory naturalist holds that such work can indeed be done. To defend this Provisory claim, I

critiqued a supernaturalist argument that asserted that science cannot evaluate the viability of a supernatural phenomenon known as intercessory prayer. I concluded that the argument was not convincing and that there were no strong reasons to believe that science should be prevented from evaluating and possibly proving prayer's efficacy. I also concluded that scientific findings from such research might be used by the Provisory naturalist to highlight the lack of evidence for supernatural phenomena. However, it should be mentioned that the same findings are not as helpful for the Essentialist. This is because her ontological naturalism is unfalsifiable. Evidence against ontological supernaturalism (perhaps, as just noted, in the form of a *lack* of evidence in support of supernatural objects) is more convincing in a context of falsifiable ontological naturalism (Provisory naturalism) than it is in a context of unfalsifiable naturalism (Essentialism).

Finally, in Chapter Seven, I looked at the relationships between both Essential and Provisory naturalism and scientism. After establishing that a scientistic view is problematic, I argued that Essential naturalism cannot help but be scientistic. Provisory Methodological Naturalism, on the other hand, can escape scientism. Avoiding blind allegiance and overconfidence in science is key here. Naturalists must admit that method of science itself requires a certain amount of faith on the part of those practicing it. Just as non-skeptics have faith that the world really is as it is represented to our senses, methodological naturalists have faith that the findings of science are accurate representations of our world. The fact that naturalism could be wrong, a fact that Provisory naturalists recognize, requires such faith. If the Essentialists were right, and naturalism was certain, no faith would be needed.

Some naturalists may object to my use of the word "faith" in a discussion about science. They may feel that the word is too enmeshed with religious ideas to be an accurate description of how scientists approach their field. Given the fact that most scientists see their discipline as highly objective, it is easy to see why some naturalists might be apprehensive about asserting that they have faith in science. And this may be especially true if faith in science is seen as on-a-par with supernaturalists' faith in God. However, it is also possible that many naturalists are afraid of the word "faith" in respect to their own view simply because they are afraid to admit that science is fallible. Science is one of our best methods for discovering the world. As a tool, it has proven indispensable. Science is the primary cause of much of the intellectual and social progress human beings have made. It is only natural, I think, to wish for it to be perfect. Unfortunately, no human-created enterprise is faultless. Science, like every other method, suffers from deficiencies. Naturalists must

recognize this and work to avoid the dogmatism of Essential Methodological Naturalism and scientism.

It is true that we cannot say that natural methods, including science, will *always* be the best tools for discovering our world. But saying that natural methods may not always be the best tools does not imply that natural methods are not *currently* the best methods for discovering reality and what exists. Although my intention in this thesis was not to defend naturalism over supernaturalism, I do hold naturalism to be the most viable approach to evaluating reality. Science, rather than some non-natural method does give us the best picture of the nature of our world. What I have attempted to do here is to argue for a measured approach to the methodological and ontological naturalism theses. In my view, a pluralist Provisory Methodological Naturalism is such an approach.

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