

What is Analytic Metaphysics For?¹

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Abstract

We divide analytic metaphysics into naturalistic and non-naturalistic metaphysics. The latter we define as any philosophical theory that makes some ontological claim (as opposed to conceptual claim), where that ontological claim has no observable consequences. We discuss further features of non-naturalistic metaphysics, including its methodology of appealing to intuition, and we explain the way in which we take it to be discontinuous with science. We outline and criticise Ladyman and Ross's [2007] epistemic argument against non-naturalistic metaphysics. We then present our own argument against it. We set out various ways in which intellectual endeavours can be of value, and we argue that in so far as it claims to be an ontological enterprise, non-naturalistic metaphysics cannot be justified according to the same standards as science or naturalistic metaphysics. The lack of observable consequences explains why non-naturalistic metaphysics has, in general, failed to make progress, beyond increasing the standards of clarity and precision in expressing its theories. We end with a series of objections and replies.

Keywords: Analytic metaphysics, methodology, intuition, science, ontology

1. Introduction

¹ Our thanks to all those who provided helpful suggestions and advice, particularly Peter Anstey, Brett Calcott, Hugh Mellor, Alan Musgrave, Josh Parsons, Charles Pigden, and two anonymous referees for this journal.

There has recently been much debate in the philosophical literature concerning the nature and value of analytic metaphysics [see, for example, Chalmers *et al* 2009]. There are those, like Ladyman and Ross [2007], who argue that analytic metaphysics ‘fails to qualify as part of the enlightened pursuit of objective truth, and should be discontinued’ [Ladyman and Ross 2007: vii]. And there are those, like E. J. Lowe [2011], who think that ‘metaphysics, conceived as an inquiry into the ultimate nature of mind-independent reality, is a rationally indispensable intellectual discipline’ [Lowe 2011: 99]. Unsurprisingly, feelings run high in this debate, concerned as it is with the intellectual worth of an area of philosophy. One feature of this debate has been a lack of consensus on precisely what counts as analytic metaphysics. Some people take it to include naturalistic metaphysics, for example, the philosophies of the special sciences. Others, like Ladyman and Ross [2007, henceforth L and R], distinguish it from naturalistic metaphysics. We think this is confusing, as ‘analytic metaphysics’ is often taken to refer to the wider enterprise. We wish to avoid this confusion, and to be impeccably clear about circumscribing our target. We will draw a similar distinction to L and R’s, but we will call these enterprises naturalistic and non-naturalistic metaphysics. Supposing analytic metaphysics to encompass both naturalistic and non-naturalistic metaphysics, our question is: what is each of these enterprises for? Naturalistic metaphysics, we will say, can be justified in the same way as science. So what is non-naturalistic metaphysics for? We present our argument against non-naturalistic metaphysics based on the value of principles derived using its methods. We end with a series of objections and replies.

2. Defining Our Target

Metaphysics is any philosophical theory (as opposed to scientific theory) that makes some ontological claim (as opposed to conceptual claim). Metaphysics can, of course, be premised

on scientific results. We follow L and R and call such metaphysics ‘naturalistic metaphysics’. Unlike L and R, we call any ontological theory that is not empirically tractable ‘non-naturalistic metaphysics’. Consequently, our definition of non-naturalistic metaphysics is ‘any philosophical theory that makes some ontological claim (as opposed to conceptual claim) which, in principle, has no observable consequences’. So, hereafter, ‘non-naturalistic metaphysics’ will refer to the set of enterprises that satisfy this definition.

One example of non-naturalistic metaphysics is the range of theories about the metaphysical nature of properties (whether properties are universals, tropes, or mere resemblances between particulars, for example). These are theories that make some ontological claim about some feature of the objective world, but no consequences of these theories could ever be observed. No observation could ever support or undermine any of these theories. A second debate we think is a paradigm example of non-naturalistic metaphysics is the debate that hails from antiquity (specifically, the Stoic Chrysippus in the 3rd Century BC) about Dion and Theon. Dion loses his left foot. ‘Theon’ is the name we give to that part of Dion that is made up of all of Dion except his left foot. According to the terms of the debate, before the accident Theon is a proper part of Dion and not identical with him. But after Dion has suffered the loss of his foot, what are we to say about the relationship between Dion and Theon? If we say they are now identical then it seems we are allowing the possibility that two non-identical entities can become identical, which seems counter-intuitive. If, on the other hand, we insist that Dion and Theon remain non-identical after the foot loss, then we are allowing that two non-identical entities can occupy the same spatiotemporal region; another counter-intuitive result.

There is a range of solutions to this problem discussed in the philosophical literature [see Burke 1994 for a survey of some of them] appealing to such doctrines as sortal

essentialism, temporal parts and contingent identity. Each of these solutions constitutes a theory that makes some ontological claim. For example, the temporal parts response claims that objects have temporal as well as spatial parts. The contingent identity response claims that objects are identical, but merely contingently so, with their constituent matter. But although they make ontological claims, none of these solutions has any observable consequences. No observation could possibly establish, once and for all, whether or not Dion becomes identical with Theon. Just as with the debate about properties, each solution is equally consistent with the data, because they are all *merely* consistent with it.² None of the solutions can ever be tested, or subjected to observation, allowing progress to be made. This explains why, nearly 2,500 years later, philosophers are still debating such issues.

Of course, not all debates that are carried out within the remit of metaphysics would count as non-naturalistic metaphysics in our terms. Theories in the philosophy of time make ontological claims: Some theories claim that there is an objective, ontological distinction between past, present and future, while others deny this. However, these theories do have observable consequences. The observations that confirm the Special Theory of Relativity show it to be *prima facie* inconsistent with the claim that there is an objective ontological distinction between past, present and future. This inconsistency does not generate a decisive defeat for such a theory, but it is sufficient to show that there is continuity between theories in the metaphysics of time and observations that support scientific theories about time.³

There are further examples of metaphysics that would not count as non-naturalistic metaphysics. L and R characterise naturalistic metaphysics as ‘motivated exclusively by attempts to unify hypotheses and theories that are taken seriously by contemporary

² We define the notion of ‘mere consistency’ in §2.

³ Not all philosophers of time share our view that metaphysical theories of time have observable consequences. See, for example, Fiocco 2007, 204-05.

science' [p. 1]. While non-naturalistic metaphysics aims to address problems that cannot be investigated by science, the goal of unification makes naturalistic metaphysics continuous with science. It is concerned with investigating both the logical and ontological unity of science, particularly between related domains of scientific enquiry (such as psychology and evolutionary theory). Naturalistic metaphysics can therefore call into question the goals of current science (so influencing which hypotheses are tested) as well as concepts employed by scientists. Thus metaphysics plays an ontological and therefore a taxonomic role in normal science. The resulting interplay between science and philosophical analysis is seen, for example, in the philosophical and scientific literature on the nature of species [van Valen, 1976; Wiley 1978; Hull, 1978 and 1997; Mishler and Donoghue, 1982; Ereshefsky, 1991; Sterelny, 1999], the operation of evolution [Lewontin, 1970; Dawkins, 1976; Gould and Lewontin, 1979; Hull, 1981; Sterelny and Kitcher, 1988; Wimsatt and Schank, 1988; Griffiths and Gray, 1994; Sterelny et al, 1996; Sober and Wilson, 1998; Jablonka and Lamb, 2005], the Special Theory of Relativity [Sklar, 1976 and 1985; Balashov and Janssen, 2003], absolute and relational theories of space and time [Earman 1989] and Quantum Gravity [Callender and Huggett, 2001; Rovelli, 2007; Butterfield and Isham 1999].

There are other subjects whose theories apparently have no observable consequences. Mathematics is a good example. We need have no concerns about ordinary mathematical problem-solving because it can be carried out successfully, independently of any ontological claims about mathematical entities. But philosophers have long investigated the ontological status of mathematical entities. They variously claim that mathematics does make ontological claims, but those claims are underpinned by science [Colyvan 2001]; that mathematics makes no ontological claims, [Field 1980, Hellman 1989], and that mathematics does make

ontological claims that are not underpinned by science [Frege 1953]. On our interpretation, only this latter view amounts to non-naturalistic metaphysics.

Some scientific theories make ontological claims but have no observable consequences, so one might wonder whether they too count as non-naturalistic metaphysics for our purposes. An example is string theory, which posits that the electrons and quarks within an atom are not 0-dimensional objects, but 1-dimensional oscillating lines, or strings. Its advocates argue that, while it has not yet made any testable predictions, primarily as this would require extremely high energies, and thus prohibitively expensive equipment, it is, in principle capable of generating them [Polchinski 2007]. However, its critics argue that, on the contrary it is, in principle, incapable of generating testable predictions [see, for example, Smolin 2006 and Woit 2006]. If the critics are right, then string theory would count as non-naturalistic metaphysics for our purposes.

To sum up, the kind of theory with which we take issue in this paper is any theory that makes ontological claims, where those claims have, in principle, no observable consequences, and are thus empirically intractable.

3. Further Characteristics and Methodology of Non-Naturalistic Metaphysics

Non-naturalistic metaphysics has recently been subjected to a sustained critique by L and R. They characterise it chiefly in terms of its discontinuity with science and its methodology of appealing to intuition. A consideration of these features will illustrate how non-naturalistic metaphysics is distinctive and problematic, and in those respects, importantly unlike other philosophical research programmes.

Like science, non-naturalistic metaphysics aims to discover the nature of objective reality. L and R agree with current practitioners of metaphysics that it is ‘the attempt to

discover general *truths* about the objective world' [p.14] Given their common aim, one would think that scientific discoveries should be relevant to metaphysical inquiry, and metaphysical discoveries should be relevant to scientific inquiry. But, according to L and R, non-naturalistic metaphysics 'fail[s] properly to pay attention to our best source of information about objective reality' [p. 5]. Rather than engaging with science, non-naturalistic metaphysics 'aims at domesticating scientific discoveries so as to render them compatible with intuitive or 'folk' pictures of structural composition and causation' [p. 1].

3.1 The methodology of appealing to intuition

Non-naturalistic metaphysics is methodologically at odds with science in that it takes as data, intuitions which scientists would see as unreliable. According to L and R non-naturalistic metaphysics prioritises intuitions about the world over scientific findings about the world. This is taken to be a metaphysical methodology in its own right [Williamson 2007]. L and R note that non-naturalistic metaphysicians often argue against some opposing metaphysical theory by highlighting the fact that it conflicts with certain intuitions [p. 13]. Or they may describe an intuitively possible situation and then draw some conclusion about the actual world on the basis of the 'existence' of this possible world [p. 14]. L and R argue against attaching epistemic significance to metaphysical intuitions claiming that it is anti-naturalist. Science has firmly established that many of our common-sense intuitions about the nature of the universe are false. In light of these discoveries, reliance on intuition as a guide to metaphysical reality seems *prima facie* reckless.

Moreover, evolutionary theory, and cognitive and behavioural sciences, provide us with explanations of the origins and function of intuitive capacities which suggest that they are unsuited to the purposes of metaphysics [p. 10]. We have poor evidence, for example, for the

reliability of our intuitions about the fundamental nature of the world. Current evolutionary psychology suggests, first that our cognitive architecture is modular and domain specific, and second that our ancestral environments were strongly focused on social interaction, interactions with other species, navigation and on determining the trajectories of medium-sized objects moving at medium speeds. Crucially,

Proficiency in inferring the large-scale and small-scale structure of our immediate environment, or any features of parts of the universe distant from our ancestral stomping grounds, was of no relevance to our ancestors' reproductive fitness. Hence, there is no reason to imagine that our habitual intuitions and inferential responses are well designed for science or for metaphysics.

[L and R: 2]

Admittedly, this does not prove the unreliability of our metaphysical intuitions. We could have evolved reliable metaphysical intuitions as a byproduct of the evolution of our other cognitive faculties. However, while we have plenty of evidence of the success of science as a means of investigating the nature of the world, we lack evidence of the reliability of our non-naturalistic metaphysics. Moreover, given that the principles of non-naturalistic metaphysics are based on intuitions whose accuracy is not open to scientific scrutiny, it is difficult to see how their accuracy could be tested. That said, we acknowledge that debate about the reliability of metaphysical intuitions is complex and ongoing.

Restrictionists [Machery *et al* 2004; Swain *et al* 2008; Weinberg *et al* 2001] argue against the reliability of metaphysical intuitions. They claim variously that it is implausible that such intuitions could have evolved; that there is too much variety or instability in such intuitions under experimental conditions; that the tendency to find certain philosophical

claims intuitive is connected to personality traits; that the intuitions of trained metaphysicians are not plausibly more reliable than those of non-philosophers, etc.

Cathedrists argue the contrary. Some attack the psychological evidence or the inferences drawn therefrom [Goldman 2007, Jackson 1998, Lycan 2006 and Sosa 2009]. Some claim the ‘expertise’ defence [but see Weinberg *et al* 2010 for a thorough assessment of the demands that such a defence must meet]. Some argue that skepticism about intuitions is a much stronger form of skepticism than is often realised and ought to be addressed accordingly. For example, Tim Williamson in *The Philosophy of Philosophy* writes,

Although there are real methodological differences between philosophy and the other sciences, as actually practised, they are less deep than is often supposed. In particular, so-called intuitions are simply judgments (or dispositions to judgment); neither their content nor the cognitive basis on which they are made need be distinctively philosophical... Although we cannot prove, from a starting point a sufficiently radical skeptic would accept, that those ways of thinking are truth-conducive, the same holds of all ways of thinking, including the methods of natural science. That is the skeptic’s problem, not ours. By more discriminating standards, the methodology of philosophy is not in principle problematic.

[Williamson 2007: 3]

In a recent review of L and R, Cian Dorr [2010] attempts to take the sting out of L and R’s critique of the methodology of appealing to intuition, by suggesting that it is not really an argumentative strategy at all. Instead, Dorr claims, it is merely a stylistic device for indicating that one is assuming some proposition as a premise, and intends to provide no further

argument for it. If that's right, Dorr claims, then one can no more criticise it as a methodology than one can criticise the methodology of giving arguments that rely on premises. We don't think that all the appeals to intuition that one finds in non-naturalistic metaphysics can be characterised in this way. Those that occur in Lewisian-style cost-benefit analyses, for example, do not fit this model. In such analyses two theories are compared with respect to a number of theoretical virtues, one of which is the preservation of common sense intuitions. With respect to this particular theoretical virtue, the theory that requires us to relinquish the fewest intuitions wins. However, even if Dorr is right about some appeals to intuition, the propositions claimed to be intuitive, and thus not argued for by metaphysicians, are still vulnerable to L and R's criticism that they have dubious epistemic credentials and are less likely to be true than more counterintuitive propositions that are confirmed by current science.

The debate between restrictionists and cathedrists is complicated by the fact that cathedrists often ignore the empirical evidence on which restrictionists rely. So, for example, it is precisely because Williamson ignores the scientific study of intuition that he must see those who doubt metaphysical intuitions as radical skeptics—skeptics about all intuitions, not just metaphysical intuitions.

3.2 The discontinuity between non-naturalistic metaphysics and science

L and R further argue that non-naturalistic metaphysics is ontologically discontinuous with science in positing entities and relations that science cannot study. So for example, they talk of 'the resurgence of the kind of metaphysics that floats entirely free of science,' [p. 9] and claim that 'metaphysicians have constructed a hermetically sealed world in which they can autonomously study their own special subject matter.' [p. 14].

While we acknowledge this issue, we also note that the term ‘discontinuity’ is ambiguous in this context. So, we should be clear about what we are claiming when we talk about continuity. It will be helpful if we distinguish ‘continuity’ and ‘consistency’ between metaphysics and science. Theories A and B are continuous if they overlap in subject matter and it’s possible for A or A’s consequences to contradict B or B’s consequences. A and B are consistent if they are continuous (with no actual contradiction between the theories or their consequences) or if they do not overlap in subject matter. What we shall call ‘mere consistency’ is consistency without continuity. That is, two theories are merely consistent if there is no ontological overlap between them; they are theories about different entities, and there is no possibility that any component statement or consequence of one could be contradicted by any component statement or consequence of the other.⁴ In practical terms it is easier to make two theories merely consistent than to make them continuous. So while non-naturalistic metaphysicians are often at pains to point out that their theory does not contradict current science, this claim only amounts to mere consistency, not continuity.

4. The Principle of Naturalistic Closure

Given the perceived failings of non-naturalistic metaphysics, L and R advise abandoning it in favour of naturalistic metaphysics. They offer the Principle of Naturalistic Closure (PNC) as a test to determine whether some theory or hypothesis is respectable and worthy of study. It consists of two claims:

⁴ We note a similarity between our notion of mere consistency and Gould’s notion of non-overlapping magisteria (Gould, 1999). We thank an anonymous referee for this journal for drawing this similarity to our attention. We think it deserves further investigation, but in the interests of brevity, defer that investigation for another time.

1. No hypothesis that science declares to be beyond our capacity to investigate should be taken seriously.
2. Any metaphysical principle that is to be taken seriously should have some identifiable bearing on the relationship between at least two relatively specific hypotheses that are either confirmed by current science, or motivated and confirmable by science. [adapted from p. 29]

L and R give an example of a metaphysical hypothesis that flouts the first claim: ‘The Big Bang was caused by Elvis’ [p. 29]. If, according to current science, the Big Bang constitutes an information barrier, such that no information can, in principle, pass across it, then there is no possibility of determining the truth-value of this claim. In that case, according to the PNC, we should just stop investigating it. Specifically, we should not look elsewhere for an answer to this question.

An example of some metaphysical debates that flout the second claim are, according to L and R, debates engaged in by physicalists in the philosophy of mind concerning the knowledge argument, the possibility of zombies, inverted spectra, and so on. All these debates are carried out completely independently of current cognitive psychology and cognitive neuroscience, and would not be affected by any empirical discovery in those fields. No facts accessible to scientific enquiry bear on whether the scenarios discussed are actual or not. If a metaphysical debate has no bearing on a field of current science that would otherwise seem to be relevant to it, and would not be affected by any empirical discoveries in that field, then alarm bells should be ringing. Such a debate, while claiming to be engaged in discovering the objective truth about fundamental reality, is carried out in total isolation from our best source of knowledge about fundamental reality.

We have considerable sympathy with the arguments set out by L and R, but we also have a number of reservations. First, the extent to which any metaphysician takes science seriously, is obviously a matter of degree. Tolerance for outmoded or simplified science will obviously vary between philosophers and philosophical contexts. Second, while L and R do their best to spell out the application of the PNC, there is likely to be disagreement about what it is for a principle to have an identifiable bearing on the relationship between at least two relatively specific hypotheses that are either confirmed by current science, or motivated and confirmable by science. There may also be debate as to what it is for science to declare hypotheses to be beyond our epistemic capacity. Third, while we share their skepticism about the reliability of some intuitions routinely employed by non-naturalistic metaphysicians, the scope of that problem is not yet settled. Even restrictionists admit that there is both empirical and philosophical work yet to do to determine what type of intuitions might be reliable under what circumstances. In the face of these considerations, the PNC might seem somewhat premature.

In this vein, Dorr [2010] criticises the PNC on the grounds that it requires us to throw out numerous arguments from metaphysics without telling us what is wrong with them. Many valid metaphysical arguments make reference to no scientific hypotheses, or to just one scientific hypothesis, and as such, violate the PNC. If the arguments are indeed valid, and we must reject them because they violate the PNC, this tells us nothing about which is the faulty premise. We think Dorr is right. L and R have shown some non-naturalistic metaphysics to be methodologically flawed, but they have not justified the wholesale abandonment of non-naturalistic metaphysics. However, we think there is an argument that might license a similarly strong conclusion.

5. Our Objection to Non-Naturalistic Metaphysics

In §2 we discussed two related characteristic features of non-naturalistic metaphysics: it is methodologically at odds with science in that it takes as data, intuitions which scientific studies suggest are unreliable, and it is ontologically discontinuous with science in the sense that it posits entities and relations that science cannot study. In light of these issues L and R offered the PNC as a principled means of distinguishing (unreliable) non-naturalistic from (reliable) naturalistic metaphysics, but we think both that it is unclear how the PNC ought to be applied and also that the PNC is too strong a principle to distil from L and R's epistemic concerns. However, we suspect that the discontinuity between science and non-naturalistic metaphysics leads to a much more serious problem.

We have defined non-naturalistic metaphysics as having two essential components: it makes ontological claims about the existence of some feature of the objective world; and the entities and relations it posits cannot, by hypothesis, even indirectly impinge upon human experience. Our objection to non-naturalistic metaphysics so defined is that, as an intellectual endeavour, it can have no practical benefit to anybody. This is to say that universals, tropes, possible, but non-actual worlds etc. cannot be harnessed for practical effect. In particular, it can make no difference to science which of a range of metaphysical theories is true. Many scientists study properties in the world, but *prima facie* it makes no difference to them which metaphysical theory of properties is true.⁵ Many scientists also study causes and effects, but it makes no difference to them which metaphysical theory of causation is true. Since non-naturalistic metaphysics makes no difference to scientific investigations, it cannot claim, as it does, to be part of the pursuit of knowledge about the objective world.

⁵ This is not to deny the possibility of a naturalistic metaphysical theory of properties, but traditionally these theories have been non-naturalistic.

Two caveats: first, we do not claim that there can be no practical benefits at all in engaging in non-naturalistic metaphysics. Second, we do not claim that any intellectual endeavour must have practical benefit of this sort if it is to be worth pursuing. It is only when a theory purports to be conveying ontological information about the nature of the objective world, while at the same time positing entities and relations that cannot, in principle, be observed, that it falls foul of our criticism. We expand on both of these caveats below.

This paper criticises philosophical enterprises that posit entities and relations whose existence does not (and cannot by hypothesis) even indirectly impinge upon or influence human experience. It is an open, but important, question just how many philosophical enterprises are of this kind, but clearly we think there are some. We can talk about whether the statue and the lump of clay are really two objects or actually just one, but the singularity or duality of the statue and the lump is not something that can impinge on human experience.

Assuming for the moment that there are philosophical enterprises that posit entities and relations whose existence does not (and cannot by hypothesis) impinge upon or influence human experience, we might ask whether research into the nature and existence of such entities and relations is justifiable.

We should first note that humans are interested in a wide variety of entities and relations whose existence is effectively untestable. These include mathematical entities such as higher infinities, Gods, fictional characters, and some physical entities such as those postulated by various forms of string theory. But we must be careful here. First, some of these enterprises do not make ontological claims. So, for example, we misunderstand the nature of fiction if we think that Conan Doyle's works assert the existence of a real person called Sherlock Holmes who is a detective living at 221B Baker St. Second, we should distinguish between an entity or relation being 'effectively untestable' and its being, by its very nature, empirically

undetectable. The existence of physical dimensions beyond the four dimensions of spacetime might be effectively untestable now, but this does not imply that such dimensions are, by their very nature, empirically undetectable (cf. the numerical identity of the lump and the statue or the existence of tropes). It may be that the existence of these extra dimensions has effects on other observable entities and relations and so we may in future devise a method for detecting their existence (just as we devised methods for detecting the curvature of space-time and phylogenetic relationships between long extinct species). If so, the claim that these dimensions exist can be added to the large and varied group of scientific hypotheses that are merely very difficult to test. Alternatively, if it can be shown that, by their very nature, these dimensions cannot impinge upon or influence human experience, then we will have to accept that this hypothesis is an instance of non-naturalistic metaphysics and therefore subject to the objections that we raise in this paper.

With this in mind, we turn to the question of whether or not research in non-naturalistic metaphysics can be justified. If tropes exist and we are good at reasoning about tropes then it may be that the existence of tropes will be a cause of us coming to have beliefs about the existence of tropes. However the existence of such entities cannot have effects on the world in the way that the existence of electrons, mammals or cars does. We cannot therefore justify non-naturalistic metaphysics in one of the ways that we justify science, maths or logic. All these enterprises may be harnessed for practical benefit. By its nature, non-naturalistic metaphysics cannot. Note that this justification for science also carries over to naturalistic philosophical enterprises (in philosophy of mind, epistemology, philosophy of biology, philosophy of physics, metaethics etc.). Understanding the nature of the unit of selection or of the evolutionary and psychological processes that underpin our ethical preferences are practical enterprises continuous with scientific endeavour.

Conversely, ethics, politics and perhaps even religion can claim to play an important part in human affairs whether or not we are realists about the entities and relations they posit. In contrast, the existence of tropes and of mereological wholes can perhaps be said to play an important part in the lives of a relatively small group of academic philosophers and their students.

But we should not pin our view of the value of non-naturalistic metaphysics merely upon an assessment of its usefulness. It would be a sad day were we to judge poetry or literature by such standards, so we should accept that the value of some enterprises must be judged in other ways. Art and music often bring pleasure to those who experience them. More challenging works (such as Picasso's *Guernica* or Beckett's *Waiting for Godot*) aim to bring a deeper understanding of the human condition. Perhaps these are the standards that we should apply to non-naturalistic metaphysics, but if so we should take them seriously. So we should ask—is there really any joy or any deeper understanding of the nature of human life to be had in the study of non-naturalistic metaphysics?

Alternatively, we might judge non-naturalistic metaphysics by the standards that many apply to religious belief. Whether or not Gods are real, religious practice clearly provides significant social and psychological benefit for many believers. This is also doubtless true to some degree of the practice of non-naturalistic metaphysics. How then should we respond to the question as to whether philosophical research in non-naturalistic metaphysics is justified? We make three observations.

First, if non-naturalistic metaphysics is to be judged by the standards of art or religion, then we should judge it by those standards. Is it fun? Does it tell us more about the nature of the human condition? Is it a club to which it is beneficial to belong? Second, if non-naturalistic metaphysics is more akin to poetry or religion, then it should stop thinking of

itself as a sort of deductive science. A science is a reliable practice for arriving at justified ontological beliefs. This is true of neither art nor religion. Third, whatever we conclude about the nature of non-naturalistic metaphysics and therefore about its value, questions about the value and goals of the enterprise are important and are ones that deserve deep examination by all those involved in the discipline.

The debate about Dion and Theon achieves no practical benefit because mereological theories have no observable consequences. This is not to say that there cannot be any benefits in engaging in it, as suggested above. In addition, there may be collateral benefits such as achieving greater clarity about the application of our concepts, such as parthood or identity. But our concern is with the non-naturalistic metaphysicians who claim that their theories are about the world, not about our concepts, so in claiming to have developed a successful theory, they claim to be saying something new and interesting about the world itself. Debates like this share no overlap with science, while claiming to be about the objective world, so engaging in them can make no genuine contribution to the human quest for knowledge about the world.

6. Objections and Replies

(i) It's true that the principles of non-naturalistic metaphysics have no observable consequences, but this is to be expected since metaphysics is prior to science. For example, E. J. Lowe writes,

[S]cience presupposes metaphysics and...the role of philosophy is quite as much normative as descriptive - with everything, including science, coming within its critical purview. Scientists inevitably make metaphysical assumptions, whether explicitly or

implicitly, in proposing and testing their theories - assumptions which go beyond anything which science itself can legitimate...This is why empirical science is dependent upon metaphysics and cannot usurp the latter's proper role. [Lowe 1998: 5]

Lowe goes on to argue that metaphysics investigates the range of possible fundamental structures of reality, while empirical science is (only!) interested in the actual fundamental structure of reality. Hence, empirical science is answerable to empirical evidence, but metaphysics is not.

Reply: Consider the claim often made by non-naturalistic metaphysicians that metaphysics studies things that scientists take for granted, such as the nature of properties. Scientists are interested in how various properties are distributed across the world. But, the non-naturalistic metaphysician points out, the scientist doesn't investigate the nature of properties; whether properties are universals, tropes, or mere resemblances between particulars, for example. These are questions that fall within the remit of non-naturalistic metaphysics. However, just as with the debate about Dion and Theon that we discussed above, the question of what the metaphysical nature of properties is has no bearing whatsoever on the actual instances of properties out there in the world. Suppose, *per impossibile*, that we discovered that properties really are universals. Such a conclusion would have no effect on the scientists' investigations into the properties that are actually instantiated in the world. Once again, we have a case of non-overlapping subject matters, which would not in itself be problematic except that the non-naturalistic metaphysicians claim that they are investigating the nature of reality, and that their investigations are relevant to science, because they are prior to science. But their investigations are entirely independent of science, our best source of knowledge about reality.

(ii) It is widely accepted that hypotheses are not testable in isolation. If we rule out hypotheses of non-naturalistic metaphysics on these grounds, lots of hypotheses at the frontiers of science would also have to be thrown out. The hypotheses of non-naturalistic metaphysics are testable in virtue of being part of a system that is testable as a whole.

Reply: We acknowledge that no hypotheses are testable in isolation, but we note that this does not imply that for any hypothesis there is some set of auxiliary hypotheses with which it could be conjoined such as to render it testable. So while there is no widely agreed way of setting out what it is for a theory to have observable consequences, we *can* say what it is for a theory to fail to have observable consequences, and this is all we need to do. If the truth of a claim, on its own or conjoined with any set of auxiliary hypotheses, makes no difference to the observations we can deduce from the claim, then it fails our criterion. The observations we can deduce from the claim that the statue and the lump are two things, are exactly the same as those we can deduce from their being one thing, no matter what set of auxiliary hypotheses we conjoin with these claims.

Moreover, if confirmational holism is correct then science is apparently impossible. No set of tests or observations can tell us anything more than that something somewhere within the web of belief is incorrect. Despite the truth of this logical claim, science has obviously been very successful in its harnessing of observational evidence that supports or undermines theories about particular events, processes or entities. We acknowledge that much of 20th century philosophy of science has been a protracted debate about exactly how it is that science rests so successfully on observation [Kuhn 1962, Lakatos 1970]. But this is not a problem that we need to solve for the purposes of this paper. So we will be agnostic here

about the outcome of this debate and hence about the specifics of the logic and methods of science.

Despite Quine, scientists continue to reject those enterprises (astrology, numerology etc.) that are so vague, or so riddled with *ad hoc* modifications, as to be effectively untestable. If science has been so successful employing that assumption, we think that philosophers ought to acknowledge the epistemic risk in drawing ontological conclusions from untestable premises.

(iii) It might be objected that our view amounts to some form of verificationism, falsificationism, logical positivism, or pragmatism.

Reply: We reject each of these characterisations of our position. We are not falsificationists or verificationists as we are deliberately agnostic about the logic of scientific justification. We merely note that non-naturalistic metaphysics cannot be justified on the same grounds as pure and applied science, namely that it can potentially be harnessed to practical effect.

We are not positivists as we do not claim that the principles and theories of non-naturalistic metaphysics are nonsense or meaningless. We accept that they consist of meaningful statements. Our criticism is that since they make ontological claims that have no observable consequences, it makes no practical difference to anyone or anything which of the competing theories is true. We do claim that non-naturalistic metaphysics and science have different subject matters, but this is not the same as claiming that non-naturalistic metaphysics has no subject matter and is therefore meaningless. Non-naturalistic metaphysics does have a subject matter, but it is ontologically isolated from the subject matter of science and naturalistic metaphysics.

We are not pragmatists as we do not insist that all philosophical theory must be capable of being harnessed to practical effect. Our concern is only with the distinctive and relatively restricted set of theories that make up non-naturalistic metaphysics. Even then, we do not insist that the value of non-naturalistic metaphysics would necessarily stem from our ability to harness it to practical effect.

(iv) Many scientific theories are empirically equivalent, and debates about them resort to other theoretical virtues to decide between them. This is no different from debates between theories in non-naturalistic metaphysics that are empirically equivalent, so must be decided upon by appeal to other theoretical virtues.

Reply: Underdetermination of theory by data is an interesting problem, but not one we need to solve. Our worry is with theories that are not determined by data at all. There is a salient difference here. Empirically equivalent scientific theories answer to some data. The theories we oppose answer to no data.

7. Conclusion

We think that the isolation of non-naturalistic metaphysics from other disciplines as well as from empirical refutation has made it moribund. We claim that a defining feature of non-naturalistic metaphysics is that it can have no observable consequences. Since competing metaphysical theories cannot appeal to observation, they must appeal to alternative theoretical virtues, such as being intuitive, palatable, commonsensical, and philosophically respectable. And thus we have the Lewisian-style cost-benefit analysis method of comparing metaphysical theories. Choosing between theories on these grounds is carried out completely independently

of their likely truth-value, appealing to virtues that look more aesthetic than epistemic. Thus, non-naturalistic metaphysics fails in its aim of arriving at the objective truth about fundamental reality.

L and R note that some debates in non-naturalistic metaphysics bear a striking resemblance to debates carried out in antiquity. Participants in the contemporary debate about the nature of matter, for example, include those who think there are atoms, in the sense of partless particles, and those who think that matter is infinitely divisible. This debate, L and R note, ‘is essentially being conducted in the same terms as it was by the pre-Socratic philosophers among whom the atomists were represented by Democritus and the gunkists by Anaxagoras’ [p. 20]. We think that the lack of any real progress in non-naturalistic metaphysics is largely due to its inability to answer to the court of empirical observation. Since debates in non-naturalistic metaphysics cannot employ the touchstone of observable consequences, none of the competing theories can ever claim decisively to have won, so that metaphysical practitioners can move on. Even those, like Dorr [2010] who claim that there has been progress in non-naturalistic metaphysics, do not cite successful theories as a mark of this progress. Instead, Dorr points to non-naturalistic metaphysics’ ‘gradual raising of the standards of clarity and explicitness in the statement of metaphysical claims. It is this...that constitutes analytic [non-naturalistic] metaphysics’ strongest claim to be part of the story of the advance of human knowledge.’ [Dorr 2010]

L and R suggest that we should abandon non-naturalistic metaphysics altogether. This paper might be seen as endorsing that suggestion. However, we have argued that there are a number of questions about the methods and aims of non-naturalistic metaphysics that remain open. The jury is still out on the methodology of appealing to intuition in metaphysics and we have only briefly explored the variety of ways in which non-scientific theories can be

valuable. Our primary aim, then, is not to claim the worthlessness of a particular philosophical programme, but to encourage philosophers to take seriously such questions about its methods and aims.

James Maclaurin and Heather Dyke
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REFERENCES

- Balashov, Y. and M. Janssen 2003. Presentism and Relativity, *British Journal for the Philosophy of Science*, 54/2: 327-346.
- Burke, M. B. 1994 Dion and Theon: An essentialist solution to an ancient puzzle, *Journal of Philosophy* 91/3: 129–139.
- Butterfield, J. and C. Isham 1999 On the Emergence of Time in Quantum Gravity, in *The Arguments of Time*, ed. J. Butterfield, Oxford: Oxford University Press: 111-168.
- Callender, C. and N. Huggett, eds, 2001. *Physics Meets Philosophy at the Planck Scale: Contemporary Theories in Quantum Gravity*, Cambridge: Cambridge University Press.
- Chalmers, D., Manley, D. and R. Wasserman, eds, 2009. *Metametaphysics: New Essays on the Foundations of Ontology*, Oxford: Oxford University Press.
- Colyvan, M. 2001. *The Indispensability of Mathematics*, Oxford: Oxford University Press.
- Dawkins, R. 1976. *The Selfish Gene*, Oxford: Oxford University Press.
- Dorr, C. 2010. Review of Ladyman and Ross, Every Thing Must Go, *Notre Dame Philosophical Reviews*, G. Gutting and A. F. Gutting, URL = <<http://ndpr.nd.edu/review.cfm?id=19947>>

- Earman, J. 1989. *World Enough and Space-Time: Absolute versus Relational Theories of Space and Time*, Cambridge, MA.: MIT Press.
- Ereshefsky, M. 1991. Species, Higher Taxa and the Units of Evolution, *Philosophy of Science* 58/1: 84-101.
- Field, H. 1980. *Science without Numbers*, Princeton: Princeton University Press.
- Fiocco, M. O. 2007. A Defense of Transient Presentism, *American Philosophical Quarterly*, 44/3: 191-212.
- Frege, G. 1953. *Foundations of Arithmetic*, Oxford: Blackwell. Trans. by J. L. Austin.
- Goldman, A. I. 2007. Philosophical intuitions: Their target, their source, and their epistemic status, *Grazer Philosophische Studien*, 74: 1–26.
- Gould, S. J. 1999. *Rocks of Ages: Science and Religion in the Fullness of Life*, New York: Random House.
- Gould, S. J. and R. Lewontin 1979. The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme, *Proceedings of the Royal Society of London B*, 205: 581 - 98.
- Griffiths, P. and R. Gray 1994. Developmental Systems and Evolutionary Explanation, *Journal of Philosophy*, 91/6: 277-304.
- Hellman, G. 1989. *Mathematics without Numbers*, Oxford: Clarendon Press.
- Hull, D. 1978. A Matter of Individuality, *Philosophy of Science*, 45/3: 335 - 60.
- Hull, D. 1981. Units of Evolution: A Metaphysical Essay, in *The Philosophy of Evolution*, ed. R. Jensen and R. Harre, Brighton: Harvester: 23-44.

- Hull, D. 1997. The Ideal Species Concept—and Why We Can't Get It, in *Species: The Units of Biodiversity*, ed. M. F. Claridge, J. A. Darwah and M. R. Wilson, London: Chapman and Hall: 357-80.
- Jablonka, E., and M. J. Lamb 2005. *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioural, and Symbolic Variation in the History of Life*, Cambridge Mass.: MIT Press.
- Jackson, F. 1998. *From Metaphysics to Ethics: A Defence of Conceptual Analysis*, Oxford: Oxford University Press.
- Kuhn, T. 1962. *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press.
- Ladyman, J., and Ross, D. 2007. *Every Thing Must Go: Metaphysics Naturalised*, Oxford: Oxford University Press.
- Lakatos, I. 1970. Falsification and the Methodology of Scientific Research Programmes, in *Criticism and the Growth of Knowledge*, ed. I. Lakatos and A. Musgrave, Cambridge: Cambridge University Press.
- Lewontin, R. 1970. The Units of Selection, *Annual Review of Ecology and Systematics*, 1: 1-18.
- Lowe, E. J. 1998. *The Possibility of Metaphysics: Substance, Identity and Time*, Oxford: Clarendon Press.
- Lowe, E. J. 2011. The Rationality of Metaphysics, *Synthese* 178/1: 99-109.
- Lycan, W. 2006. On the Gettier problem problem, in *Epistemology Futures*, ed. S. Hetherington, Oxford: Oxford University Press, 148-168.

- Machery, E., Mallon, R., Nichols, S., and S. P. Stich 2004. Semantics, cross-cultural style, *Cognition*, 92/3: B1–B12.
- Mishler, B. D. and M. J. Donoghue 1982. Species Concepts: A Case for Pluralism, *Systematic Zoology*, 31/4: 491 - 503.
- Polchinski, J. 2007. All Strung Out, *American Scientist (January-February 2007 Edition)*, ed. D. Schoonmaker, URL = <<http://www.americanscientist.org/bookshelf/pub/all-strung-out>>
- Rovelli, C. 2007. Quantum Gravity, in *Philosophy of Physics* ed. J. Butterfield and J. Earman, Amsterdam: Elsevier, 1287-1330.
- Sklar, L. 1976. *Space, Time and Spacetime*, Berkeley, CA.: University of California Press.
- Sklar, L. 1985. *Philosophy and Space-Time Physics*. Berkeley, CA.: University of California Press.
- Smolin, L. 2006. *The Trouble with Physics: The Rise of String Theory, the Fall of a Science, and What Comes Next*, New York: Houghton Mifflin.
- Sober, E. and Wilson, D. S. 1998. *Unto Others: The Evolution and Psychology of Unselfish Behaviour*, Cambridge, Mass.: Harvard University Press.
- Sosa, E. 2009, A Defense of the Use of Intuitions in Philosophy in *Stich and his critics* ed. D. Murphy and M. Bishop, Oxford: Wiley: 101-112.
- Sterelny, K. 1999. Species as Ecological Mosaics, in *Species: New Interdisciplinary Essays* ed. R. A. Wilson, Cambridge Mass.: MIT Press, 119-38.
- Sterelny, K., and P. Kitcher 1988. The Return of the Gene, *Journal of Philosophy*, 85/7: 339-61.

- Sterelny, K., Smith, K. and Dickison, M. 1996. The Extended Replicator, *Biology and Philosophy*, 11/3: 377-403.
- Swain, S., Alexander, J. and Weinberg, J. M. 2008. The Instability of Philosophical Intuitions: Running Hot and Cold on Truetemp, *Philosophy and Phenomenological Research*, 76/1: 138-155.
- van Valen, L. 1976. Ecological Species, Multispecies and Oaks, *Taxon*, 25/2: 233-39.
- Weinberg, J. M., Nichols, S., and S. P. Stich 2001. Normativity and Epistemic Intuitions, *Philosophical Topics*, 29/1: 429–60.
- Weinberg, J. M., Gonnerman, C., Buckner, C. and J. Alexander 2010. Are Philosophers Expert Intuiters?, *Philosophical Psychology*, 23/3: 331-355.
- Wiley, E. O. 1978. The Evolutionary Species Concept Reconsidered, *Systematic Zoology*, 27/1: 17-26.
- Williamson, T. 2007, *The Philosophy of Philosophy*, Oxford: Blackwell.
- Wimsatt, W. C., and J. C. Schank 1988. Two Constraints on the Evolution of Complex Adaptations and the Means of Their Avoidance, in *Evolutionary Progress*, ed. M. H. Nitecki, Chicago: University of Chicago Press: 231-75.
- Woit, P. 2006. *Not Even Wrong: The Failure of String Theory and the Search for Unity in Physical Law*, Cambridge, MA.: Basic Books.