Article

Taking the 'Meta' out of Physics:
A response to Graham Smetham's 'The Matter of Mindnature'

Robert M. Ellis*

Abstract

In this response to Graham Smetham's criticisms, I defend the approach of metaphysical agnosticism on philosophical grounds. Pyrrhonian (agnostic) sceptical approaches are distinguished from Academic ones and shown not to be contradictory provided one does not begin with unnecessary metaphysical assumptions. The burden of proof needs to be put on those who make metaphysical claims rather than those who stick to experience as a point of reference, and falsification involves a provisional, not an absolute, process of elimination of theories that do not fit the evidence. Smetham's appeals to certain results from quantum physics as exceptional are shown to be unacceptable on the grounds that no scientific observation can confirm metaphysical claims that lie beyond their scope. A wider psychological, moral and linguistic context is given for the argument that we should avoid the adoption of a metaphysical framework of understanding.

Keywords: metaphysics, quantum physics, Buddhism, scepticism/ skepticism, metaphysical agnosticism, Pyrrhonism, Middle Way Philosophy, incrementality, justification, nihilism, paradox of scepticism, paradigm shifts, falsification, scientific exceptionalism, representationalism.

Graham Smetham's paper 'The Matter of Mindnature' is an extended critical attack on an argument I included in my book 'The Trouble with Buddhism'. This argument was that quantum physics cannot give us metaphysical information, and that metaphysical claims supported by quantum physics are at best an irrelevant distraction from the Buddha's key insights expressed in the Middle Way. I would like to thank Graham for taking an interest in my arguments, and taking some trouble to find out more about them through email correspondence. Nevertheless, his critical paper misunderstands my argument in a number of ways through not considering it in its full context – which is the philosophical approach expressed most fully in my Ph.D. thesis, published as 'A Theory of Moral Objectivity', and which I have taken to calling Middle Way Philosophy. He also makes many philosophically questionable assumptions, which are not improved by the fact that he is not alone in making them.

I am not a physicist, and do not consider myself qualified to comment on the more technical aspects of the experimental evidence that Smetham discusses in some detail in the second half of his paper. However, as a philosopher, I do consider myself qualified to comment on the general conditions surrounding knowledge claims. It seems that quantum physicists have become gods, if they really claim to be able to support metaphysical beliefs from finite

* Correspondence: Robert M. Ellis, http://www.moralobjectivity.net E-mail: re@moralobjectivity.net

scientific observation and experiment: and none of the evidence Smetham offers gives any justification for such extraordinary claims, as I shall explain.

Smetham raises a number of interconnected philosophical issues, which I am going to respond to under the first eleven sub-headings below: all of these concerned in some way with scepticism, the nature of metaphysics, and the relationship of theory to metaphysics. However, to try to support a fuller appreciation of my reasons for adopting the agnostic stance that Smetham criticises so strongly, I am also going to conclude with a brief account of three areas of Middle Way Philosophy that Smetham has largely ignored, but which I think are unavoidably interconnected with these arguments about the status of quantum theories: that is, questions of language, psychology and ethics. This will offer the basis of a further secondary argument against accepting metaphysical beliefs, on the grounds of the practical effects of doing so.

1. The supposed paradox of scepticism

Middle Way Philosophy includes a commitment to metaphysical agnosticism, justified through well-known sceptical arguments. Smetham's arguments against this approach, on the other hand, depend strongly on the assertion that sceptical assertions must be metaphysical assertions, and therefore that sceptical arguments are contradictory in seeking to avoid scepticism.

> *"... we may not know anything, and we cannot and should not affirm either that we know or that we do not know."*

> *But, immediately, we know that he cannot know this; for how can anyone know that there is no possibility of that very knowing without undermining the very possibility of knowing the lack of knowing?* [1]

Here Smetham misses the distinction, which goes back to ancient Greek Scepticism, between what the Greeks called 'Pyrrhonism' and 'Academic Scepticism'[2]. Pyrrhonian forms of scepticism, of the kind I have utilised, do not make any claim to have knowledge that we do not have knowledge, only to cast doubt on any claim to knowledge. This point is clearly expressed in my use of the term 'may' rather than 'do' in the passage Smetham quotes. We *may* not have knowledge, but we do not know that we do not know. Nevertheless, the recognition that we *may* not have knowledge is sufficient to justify us in avoiding claims to absolute knowledge, limiting ourselves only to claims of provisional belief.

It is not enough here to merely assert, as Smetham does[3] that the untruth of Cartesian claims about matter has been proved, showing that there is no justification for such metaphysical agnosticism. This alleged disproof is based on observations that are still subject to sceptical argument. The claim that experimental evidence regarding quantum physics, particularly in Smetham's example of Bell's inequality, is an exception to the general limitations of information from scientific experiment, is one I will tackle in section 11 below.

Since Smetham complains that my definition of knowledge is unclear, let me clarify here that I am not challenging the widely accepted definition of knowledge as justified true belief.

Under such a definition, we lack adequate justification for believing that our claims are true because of the sceptical arguments that Smetham quotes[4], and thus if it happens that our beliefs are true (which they *may* be) this will nevertheless be irrelevant to our concerns. I prefer to avoid the use of the term 'knowledge' in a weakened conventional sense for the practical reason that this can distract us from recognising our lack of knowledge in a strong sense.

However, if Smetham still wants to argue that all sceptical claims, no matter how provisional, must be metaphysical by definition, I must point out the circularity of this assumption. The universality of metaphysics is here being supported in turn by a dogmatically-assumed metaphysical claim, not by any theory accessible to experience. The distinction between metaphysical and provisional claims obviously cannot be made metaphysically, otherwise founding assumptions alone will lead one into the inescapability of metaphysics; however, we can make a distinction between provisionality and metaphysics both in terms of accessibility to evidence (the issue of falsifiability, which will be discussed in section 10 below) and also in psychological terms. Our mental states when we are merely defending what we already assume are distinguishable from our mental states when we are open to investigation through experience and are capable of modifying our views in response to that experience. This point will be discussed further in section 13 below.

Metaphysicians in general seem to want to envelope us in a massive Catch-22: if we try to get out of metaphysics we are judged to still be doing it regardless. Their view of the world is self-validating in its own terms. However, I want to argue that this view of the world is neither inevitable nor helpful. It can be generally observed that we all have representational beliefs about the world, but these representations are not necessarily metaphysical representations, because we can at least roughly distinguish those that make claims accessible to experience from those that do not. If we allow this distinction, regardless of specific issues about the precise boundary between what is metaphysical and what is not, we can start to make progress in important practical issues about the objectivity of science and ethics. However, if we deny any such distinction from the beginning, we shut out the possibility of any such progress and are stuck with the problem of relativism. Much of the rest of this paper will offer an accumulation of support for this perspective.

2. The supposed presentational paradox

The supposed paradox of scepticism is closely related to the supposed paradox of presentation. In addition to claiming that scepticism must be dogmatic in terms of the claims it makes, Smetham seems to be suggesting in a number of places either that the presentation of a sceptical argument cannot be provisional, or perhaps more specifically that my own presentation of it is not. For example, he writes:

> *Remarkably however, as anyone who goes on to Dr. Ellis's website, moralobjectivity.net, will quickly see, he seems to think that he "knows" quite a lot.*[5]
>
> *Ellis, however, seems to adopt definitions and interpretations which he asserts in a remarkably dogmatic fashion, given that he claims to practice the "non-dogmatic" true "Middle Way". This is his own personal "discovery" of the true "Middle Way", which is a central, yet, according*

> *to him, misunderstood by Buddhists, notion within the Buddhist tradition. Indeed Ellis' presentation of his "Middle Way" seems to imply it is a discovered metaphysical entity, like a mathematical truth which was eternally destined to be just the way he describes it, and all Buddhists have and still do misdescribe it.*[6]

And, more oddly:

> *It is quite clear from this fragment that Ellis considers that there exists a kind of Platonic philosophical realm, which he has dubbed as his "correct" version of the "Middle Way", wherein pristine logical forms of argument have been established by a kind of divine logician and it is only the results of the application of the divinely ordained logical procedures (those Ellis has discovered) which can reveal the fact that we can never "know" "Reality".*[7]

Let's separate out these two possible interpretations of Smetham's comments. Firstly, he might think that even when a Pyrrhonian sceptic attempts to write provisionally, he or she will inevitably not succeed. Perhaps all human beings cannot avoid being dogmatic metaphysicians. If that is what he means, then my arguments in the previous section come into play. The inevitability of metaphysics is coherent in its own terms, but it is an interpretation that the metaphysicians choose to make, and there are more helpful alternatives available. If one does choose the more helpful alternative of recognising that provisionality is possible, then it is much more germane to the progression of argument if when a sceptic says that all their statements are provisional, to apply the principle of charity in interpreting them as such in any cases of interpretative doubt.

On the second interpretation, Smetham may just be pointing out the imperfections of my own provisionality of argument. Every claim I make in all my writings aspires to be provisional, but I have not always succeeded in this – it is an ongoing matter of practice. If my practice is imperfect, I apologise, as I know that I have lapsed into rhetoric that shows a passionate (and thus perhaps insufficiently provisional) attachment to a particular position in some places in *The Trouble with Buddhism* (which was originally conceived as directed towards a relatively popular audience). For example, Smetham understandably (though not helpfully) throws the word 'foolish' back at me. Such lapses may well be an indication of limitations in the provisionality I have actually achieved. However, in most places where provisional claims are made, it is very easy for someone who is determined to interpret them as dogmas to do so, and Smetham does not seem to have given me the benefit of the doubt in this respect. To justifiably draw the conclusion that someone is dogmatic, one needs to survey their work more broadly and ask whether the belief that they are dogmatic is consistent with the wider picture that is emerging, rather than relying on one's emotional response to a few sentences that one disagrees with.

In any case, imperfections in my own presentation are not evidence that the Middle Way cannot be applied in a provisional way. Such provisionality is central to the meaning of the Middle Way on the interpretation I am putting forward, and, crucially, such provisionality is incompatible with metaphysical claims that go beyond all possible experience. They certainly do not imply that there is some hidden Platonic agenda[8] where a supposedly absolutely correct blueprint of the Middle Way is claimed to be available to me. Instead, the Middle

Way is a theory, subject to the evidence of experience like any other theory, but one at a high level of generality[9]. I have never claimed that I know the "True Middle Way" or that I have an ultimately correct understanding of it – only an account that seems to lack the disadvantages that attend the more traditional Buddhist versions[10], and one that seems to be justified in both coherence and recognition of its own limitations[11]. The statements Smetham quotes that show that I believe my theory to be radical and important, and that I think there are confusions in the Buddhist tradition, do not in the least imply such absolute claims on my part. It is quite possible to be putting forward arguments that one considers important, and that improve on previous ones, and yet remain fallible and aware of that fallibility.

The best practical test of provisionality in the short term is that of openness to revision. Middle Way Philosophy remains open to revision, but metaphysical beliefs, by definition, cannot be open to revision. Middle Way Philosophy, however, is only open to revision from those who accept its basic terms of provisionality, not those who want to either insist on its metaphysicality, or to misunderstand its provisionality as an openness to metaphysics that would destroy that provisionality. I welcome collaborators in improving Middle Way Philosophy, but Smetham has not as yet approached it in that spirit.

3. Jostling for the incremental ground

Smetham's comments also suggest that he recognises the importance of incrementality, but that he is not willing to yield that Middle Way Philosophy is incremental, nor that meta-physics is not.

> *But according to Ellis, although we cannot „know" anything, what we can have is "incremental" "justifications". "Justification" says Ellis, is "incremental" whereas, according to him, "knowledge" is all or nothing, we either know the absolute reality of something or we do not. This is an important point, for if one uses or understands the term "knowledge", as most people do, on a sliding scale depending upon context, one runs into problems with Ellis for whom knowledge seems to be all or nothing:*
>
> > *"Agnosticism does not remove the possibility of justification from our beliefs, because justification, unlike knowledge, is an incremental term which can be calibrated in relation to experience. Justification depends on the extent to which we have removed the conditions of ignorance which prevent us from assessing our experience objectively. The conditions of ignorance include the assumptions either that we "know", or that we "don't know" about what we are dealing with, when all we actually have access to is degrees of justification".*
>
> *This is an important insight which we will return to when we come to consider how physics has come to "know" various "metaphysical" things about "reality" through an "incremental" process. But for the moment it is important to note that one problem with Ellis' perspective, which is implied by the preceding sentence, is that, at least on the surface, it looks*

> *as if what Ellis is doing is simply rearranging language use, replacing the term "justification" for the term "knowledge" as used in its weak contextual sense, whilst presenting his philosophy as some radical new discovery, the discovery of the real "Middle Way", as opposed to the incompetent Buddhist version.*

The concept of justification as I have used it obviously does have a good deal of overlap with a weak sense of "knowledge" as commonly used. However, I have defined justification, not as justified true belief, but as falsifiable coherence[12] (using the account of coherence that includes evidence through experience, and one of falsifiability explained in section10 below). There are thus important differences between the two concepts. Knowledge, even in a weak conventional sense, involves an assumption of correspondence between one's representation and a reality beyond it (see section 12 below), whereas justification does not require any such correspondence and thus avoids metaphysical assumptions.

If, as seems to be the case here, Smetham recognises the importance of incrementality, and that scientific evidence is incremental, it seems odd that he is then able to assert that science can offer absolute conclusions (but see section 11 for a fuller discussion of this). It also seems uncharitable that he is unable to credit my approach with the incrementality it aspires to. We do not have to jostle for the incremental ground and each claim unique occupation of it – we just need to argue on a basis that is shown not to preclude incrementality.

Claims to knowledge which appeal solely to correspondence with a representation that we believe to be 'real' cannot avoid precluding incrementality, because either that representation is correct or it is not. If we start to modify our representation in response to feedback, we simultaneously admit that the previous representation did not reflect reality, so, in practice, we use a feedback loop together with an awareness of the fallibility of our theories. Such modifiable theories may in practice be called 'provisional knowledge', but they only become modifiable because we recognise the possibility of being wrong when we hold them – a psychological requirement that is not traditionally specified in any definition of knowledge or of justification as a necessary feature of knowledge. It is the psychological state in which the belief is held that makes the conclusive difference to its incrementality, regardless of whether we call it knowledge or not.

Metaphysical claims, on the other hand, do not admit of any such incrementality, because they cannot be subjected to any feedback loop or modified in response to evidence. This applies to obvious metaphysical claims such as the existence of God, and also to the one that Smetham claims is proved by quantum physics: the wrongness of Descartes' account of matter[13]. Even if it were the case that this metaphysical belief were exceptionally proved by observations in physics (which I do not accept – see section 11), once accepted, this belief could not be subsequently modified by further observations. This must be the case because it is absolute and does not admit of increments: Descartes' account of matter cannot be partly wrong or subtly modified, but can only be right or wrong. A belief about either the rightness or the wrongness of Descartes' metaphysics cannot be a scientific belief in the usual evidential sense if it is not open to subsequent incremental modification in the light of evidence.

4. The accusation of nihilism

Smetham also completely misunderstands Middle Way Philosophy when he assumes that its sceptical approach implies relativism and/or nihilism. After quoting Anne Klein, he writes:

> *But such views concerning the necessary metaphysically limiting fetters of psycho-social and cultural frameworks are, as Klein intimates, themselves part and parcel of a particular, mostly academic, limiting fetter of a Western psycho-social and cultural framework. And if this particular fetter, adopted as an epistemological absolute, were to be incorrect then it would indeed be a "fetter" which possibly cuts off an avenue to an absolute and unconditioned metaphysical insight.*[14]

And later:

> *...the metaphysical nihilism which seems to lie at the core of Ellis" vision...*[15]

Smetham alleges that my approach

> *reduces all human beings the same level of insight, all having the same "limited perceptions and a limited mental capacity to process those perceptions". However, it only takes a few moments thought to see that it is not true. It is quite clear that there are levels of capacity for insight within the vast expanse of human embodiments, otherwise we would all be on the intellectual level of Einstein, imbeciles or somewhere between the two.*[16]

The implication seems to be here that the only way to avoid metaphysical nihilism is the acceptance of "absolute and unconditioned metaphysical insight": an entrenchment of the very dualism that the Buddha sought to avoid in his rejection of metaphysical dichotomies[17]. The limiting relativist or nihilist fetter found widely in Western academic thought is not due to the mere recognition of a psycho-social and cultural framework, but to the assumption that such a recognition cuts off the possibility of objectivity. It is this assumption that Smetham and his fellow absolutists *share* in unholy alliance with postmodernists, the central assumption that I have sought to question in Middle Way Philosophy.

I would agree with Smetham completely that we have different "levels of capacity for insight", but the recognition that all these different levels are to some extent limited in no way homogenises them into one level, as he implies. On the contrary, it is the recognition that we are all finite and embodied creatures that provides us with a basis to distinguish levels of objectivity below the level of absolutes. We just have to acknowledge that distinctions of objectivity are based, not on absolute metaphysical Insight, but on differential levels of experiential adequacy and psychological integration.

If we understand objectivity, not in absolute but in incremental terms, then it is persons and their judgements who can be more or less objective, not beliefs. This objectivity is interfered with to varying degrees by cognitive biases that interfere with our understanding of conditions[18], together with emotional conflicts that divide our awareness[19]. Metaphysical beliefs, far from supporting this genuine, experienced, incremental objectivity, interfere with it by providing an intense focus for attachment. Because metaphysical beliefs seem

unassailable, they provide an attractive but deceptive basis for identification, their objectivity false by the very reason of it being absolute[20]. See section 13 below for more on this argument.

The whole project of Middle Way Philosophy maintains as its prime goal the avoidance of both eternalism and nihilism[21], of positive and negative forms of metaphysics. It attempts the difficult task of maintaining equidistance between them, and as a result gains criticism from both sides. If it was indeed "metaphysical nihilism" it would have failed in this task, but it is difficult to see how a philosophy that offers a worked-out account of objectivity, applied both to scientific and to moral judgements, can be fairly described in such a way. Whether your definition of nihilism, like mine, is that of a denial of moral objectivity, or whether you accept traditional Buddhist, analytic or Nietzschean definitions of nihilism, all involve the denial of objective moral and epistemic values that Middle Way Philosophy not only clearly affirms, but also seeks a new way of justifying.

5. Circularity and burden of proof issues

Smetham also accuses my arguments of circularity: a point which raises issues of where the burden of proof lies.

> *Ellis rejects the argument that his derivation of "metaphysical agnosticism" requires an initial metaphysical commitment of his own, he calls his sceptical starting point to be a non-absolute "general claim":*
>
> > *"This is not an absolute claim, but a general claim based on an observation of the conditions of all human experience."*
>
> *But the problem with such a "general claim" is that it treats the observation of the "conditions of all human experience" made by a self-confessed "being with limited capacities" as being valid and sufficient for clearly establishing an all embracing claim as to what can and cannot be claimed. But the observation is clearly dubious; the observation is dubious on the basis of the claim based on the observation. This seems absolutely clear, it is circular and self-defeating.*[22]

This is an argument that partly depends on the lack of appreciation of the distinction between Pyrrhonian and Academic forms of scepticism mentioned in section 1 above. If you grant the Pyrrhonian no licence to make a non-absolute claim about the non-absoluteness of her claims, then it will obviously appear circular. However, this is a circularity created by metaphysics, and the assumption that all claims must be metaphysical, not by agnostic scepticism. The circularity attributed here to my position is one shared by all metaphysical positions, including Smetham's, as they assert that their observations give them justification for metaphysical conclusions because metaphysics is the only possible way of understanding the universe, because of their observations that are interpreted metaphysically.

However, if we do not make any assumptions about the inevitability of a metaphysical stance, we stand a chance of making progress using, not a Cartesian-style circle, but a feedback loop. If evidence allows us to shift our position, each new access of evidence can result in a

modification of theory and a new standpoint from which to seek evidence. Any theory created in terms of metaphysical agnosticism allows us to do this, because it leaves theories as provisional. Metaphysical agnosticism (or, more broadly, Middle Way Philosophy) itself is a general claim which can itself be adjusted in response to evidence (for example, in its understanding of what psychological states are associated with agnosticism, or what kinds of beliefs in what kinds of practical contexts have the effect of dogmatic metaphysics), though only in terms of its implications for investigation, not in its basic rejection of metaphysics. The rejection of metaphysics has to be decisive in order not to get sucked into metaphysical ways of thinking which undermine the whole approach: but this rejection is required as a practical response to the evident dualistic and dogmatising properties of metaphysics.

So, metaphysical agnosticism appears circular to metaphysicians in their terms, whilst any appeal to metaphysics appeals circular to metaphysical agnostics in their terms. How are we to resolve such an impasse? Smetham's preferred method often seems to be a concatenation of quotations from authorities, all of which share his assumptions. On ordinary matters where we are deciding where to place our investigative energies, establishing credibility by appeal to experts may be useful, but it tells us nothing about their justification when the very basis on which they are reasoning is being called into question. Indeed, the group bias effect recorded by cognitive psychologists suggests that we are very often distracted from proper consideration of evidence by the belief that lots of other people, particularly those with authority, agree with us in either accepting or rejecting it (see section 13 below).

The underlying issue is one of the burden of proof, even though the basis on which burden of proof should be allocated is itself a controversial issue. I am accustomed to having the burden of proof thrust upon me by social convention because I am expressing a minority point of view, but I would suggest that in basic epistemological matters a fairer way to allocate it is according to accessibility to everyday experience. Those who want to make extraordinary claims about non-evident matters (i.e. metaphysical claims) are the ones that should carry the burden of proof, not those who appeal to the foreseeable experience of all. Indeed it seems to me a very strange state of affairs if those who make absolute claims have their assumptions taken for granted, while those who attempt to confine themselves to non-absolutes are charged with proving that they really are non-absolute! A rough analogy to this might be being stopped by a policeman and asked to prove that you are really not a giant lizard in disguise.

6. The multiple possibilities argument

A further objection to metaphysical agnosticism used by Smetham is the argument that it would make all metaphysical possibilities, even silly ones, equally likely.

> *The holographic universe proposal, rather, is one metaphysical possibility "justified", to employ Ellis' preferred terminology, by the scientific method through the experimental evidence and mathematical analysis. It is one metaphysical possibility amongst a infinite number of metaphysical impossibilities, such as, for example, that all the phenomena of the universe are caused by Noddy and BigEars manipulating wooden levers on the edge of space. One would have thought it quite possible to return a negative evaluation upon this metaphysical suggestion, if anyone were to be so "foolish" as to suggest it! In a sense this extreme example is*

> *only slightly extended for irony's sake for there has been a recent tongue in cheek suggestion by some physicists that we might all be living in a vast computer simulation organized by aliens. Even physicists have their off days in philosophical mode. One has to bear in mind that if we take Ellis's "serious" acceptance of scepticism seriously then all manner of ridiculous metaphysical possibilities would have to remain in the agnostic box, perhaps even the metaphysical potency of Noddy and BigEars. I suppose Ellis would say we are overwhelmingly and "incrementally" "justified" in supposing this not to be true.*[23]

Here Smetham misunderstands my perspective again. I would have no problem in accepting that the Noddy and Big Ears scenario should "remain in the agnostic box" along with the acceptance or dismissal of the holographic universe. As metaphysical claims, they are neither more nor less likely than each other, just as the Flying Spaghetti Monster is neither more nor less likely than the existence of God. If we take probability to be a measure of likely experience judged on the available evidence of past experience, probability simply does not apply to metaphysical claims. Based on previous experience, the probability of metaphysical experience is zero, so there is no problem in acknowledging that Noddy and Big Ears causing all phenomena is as likely as any other metaphysical explanation of all phenomena – that is, not likely at all. Any of these explanations are *possible*, and we cannot rule them out of possibility without making negative metaphysical claims, but their possibility does not bring them into the realm of probability.

We still need to be able to account for why some metaphysical beliefs are much more popular than others, so that, for example, God is much more popular as an explanation of the cause of the universe than Noddy and Big Ears. My suggestion here is that the more popular beliefs use symbols that are more meaningful to people and thus have a bigger appeal, which is reinforced by the social function of metaphysical beliefs in supporting group-allegiance. Obviously the idea of disproving Cartesian matter is highly meaningful to some quantum physicists, but as soon as we advance from the realm of meaningful story to that of factual assertion, group identity starts to become entrenched by that assertion in a way that it did not have to be by the mere story. A hypothesis or a theory can remain in the provisional world of story as long as it is investigated and remains capable of being investigated. As long as we maintain that openness, so does the group that supports that theory, but as soon as the theory becomes 'proven' (or alternatively, becomes the basis of faith regardless of evidence), the group-identity hardens and the apparent unassailability of the belief becomes a rallying-point for an increasingly competitive, even combative, group[24].

There is no need to dismiss the meaningfulness of metaphysical assertions after the manner of the logical positivists (see section 12 below), because metaphysical assertions can be recognised as both meaningful and possible without being either probable or proven, or having anything beyond social bonding functions to motivate their acceptance.

So, Noddy and Big Ears causing all phenomena by pulling wooden levers on the edge of space is a nice story. All it needs is a group that will tell it. This will be a harmless group, perhaps even an inspiring one, until such point as it starts asserting this story as true, and using it to compete with other groups that assert other stories that are claimed to be true. Quantum physics seems to me to have not only a harmless, but indeed an inspiring and interesting story, until the point when Noddy and Big Ears start brandishing their wooden

pegs and waving them aggressively at passing giant lizards. However, while Noddy and Big Ears don't have a group they don't mean very much, so they'll have to forgive me for neglecting them in favour of the discussion of more popular assertions.

7. Reality united with experience

At the heart of Smetham's metaphysical vision seems to be a monistic insistence on the unity of experience with Reality.

> *If two ontological aspects of the world are considered to be absolutely antithetical and unconnected in essence then there can be no connection between them. So if "experience" were to be completely beyond the pale of "Reality" then obviously we could never "know" it in any shape or form. But such a notion is clearly incoherent precisely because it is only through "experience" that we can have any notion at all about "Reality", "Reality" is clearly revealed, admittedly in degrees of "veiled" forms, through experience.*[25]

The key to this argument lies in the word 'ontological' at the beginning. Smetham already assumes that the sceptical argument must be an ontological argument (raising the 'paradox of scepticism' issue discussed in section 1 above), and thus that the separation must be an ontological separation 'in essence'. But again, he is misunderstanding metaphysical agnosticism by viewing it through a metaphysical lens that merely obscures it. All that the Pyrrhonian sceptical starting point begins with is the observation that claims about Reality cannot be justified on the basis of experience, supported by a recognition of changing and limited perspectives and past and potential mistakes. We create a 'reality' for ourselves through constructive representation, but no claims are made about the ontological status of this reality: it is just a shifting, flexible interpretation of our experience. There is certainly no speculation about a 'Reality' beyond such reality, so that it can be considered "antithetical and unconnected in essence". This is the realm of negative metaphysics, which Smetham constantly confuses with agnosticism, and there is no reason for agnostics to get embroiled in it.

Smetham continues

> *One assumption which is shared by physics, hopefully Western philosophy (even in spite of Hume) but certainly Buddhist philosophy is that "Reality" is at basis coherent, and the notion that the interdependent realms of "Reality" and "experience" are absolutely and irredeemable antithetical is clearly incoherent; for if this were the case then "Reality" would have nothing whatsoever to do with our experience, in which case from whence cometh experience?*[26]

I see no reason why either physics or Buddhist philosophy should assume that Reality is coherent. This is a very dangerous assumption to make, because it sets us up for confirmation bias: we look for coherence and we find it, then we absolutise the coherence we have found, even though it may be a result of egoistic projection and is part of an ongoing process of investigation. To some extent we probably cannot help seeking coherence in the world around us, and indeed this tendency may be inextricable from our intelligence and creativity

as a species: however, we can avoid absolutising the patterns we find, and leave them as stories or theories with varying degrees of support.

At the end of this quotation Smetham asks the causal question which has been asked before by philosophical realists: surely a Real world is the best explanation for the cause of our experience? I would agree that it is – or at least, that a *real* world is such a best explanation. This is the best reason for assuming that tables, chairs, doors etc will continue to interact with us in the way we are accustomed to them doing. However, an explanation is a hypothesis, or at best a theory, and the mere capacity to provide the best explanation falls far short of ultimate proof. So, it is not a Real world but a real world that can provide the best explanation. Ultimately we just do not know what causes our experiences.

This causal question is, indeed, the one that the Buddha appears to point out the unhelpfulness of in the well-known parable of the arrow[27]. If we are too concerned with explaining the ultimate cause of the arrow, he says, we will be distracted from the immediate practical need of pulling it out. Reality is not necessarily divided from experience, but beliefs about it are just not relevant to the demands of that experience, and concern with those beliefs is very likely to distract us from practical requirements that we can easily judge from experience.

8. Sufficiency and independence

One of my most basic arguments against the idealism that Smetham promotes is the point that quantum physics shows consciousness to be necessary for perceived quantum objects but not sufficient. Without a complete understanding of all possible conditions affecting such objects we cannot justifiably conclude that consciousness alone is enough to create them. Smetham replies as follows:

> *The introduction of the "necessary and sufficient" distinction is quite obviously irrelevant. If, as quantum physicists Planck, Schrodinger, Pauli, Wheeler, Bohm, Rosenblum and Kuttner, Stapp, Zurek, Zeh, Penrose … etc. etc. all conclude that in some manner consciousness is required for the appearance of the apparent experienced world of substantiality from an insubstantial quantum ground of potentiality, then, quite clearly, the entities of experienced realm are dependent and therefore not independent. This is why the quantum physicist Professor Anton Zeilinger refers to the pre-quantum viewpoint as involving:*

> *…the obviously wrong notion of a reality independent of us.*

> *This is really a matter of definition of words: if something depends upon something else then it is not independent, this has nothing to do with philosophical analysis into necessary and sufficient conditions. It appears that in Ellis's mode of philosophizing he thinks it is necessary to bring in irrelevant distinctions in the hope that they may be sufficient to bring unnecessary confusion into the issue.*[28]

I have a certain respect for many of Smetham's arguments, because they make sense in their own terms: but this one does not. Because he is able to put the same point in different words he seems to assume that a different distinction must be being made in his language, and therefore that I must have been making irrelevant distinctions in the original point. However, 'necessary to' is synonymous with 'dependent': if "something depends on something else" then this means exactly the same as "something else is necessary to something". Similarly, if *a* is sufficient for *b*, then this means exactly the same, at least in the shared language of Western philosophy and science that we are using, as "b is not independent of a". Sufficiency is just a complete dependency, without any other contributory causes or conditions being required. So, my point, restated in Smetham's preferred language, would be exactly the same one: quantum physics shows perceived objects to be dependent upon consciousness, but it does not thereby show that they are dependent only on consciousness and nothing else. It does not show that objects are independent of other factors that *may* be operating, such as a *possible* material universe.

Claims about sufficiency of cause are indeed generally rather difficult to make sceptic-proof, unless they describe the same event in different terms and claim that one description sufficiently caused another. For example, a bullet through the vital areas of one's brain is a sufficient cause for death. This claim seems indisputable if one takes the bullet's destruction of brain-function and death to be basically the same event described in different ways, but if we take them as distinct events, there will always be room for a sliver of doubt as to whether the bullet was really enough by itself. If any time elapses between the bullet and the death, for example, we could take the time lapse itself, plus possible other small events in it, to contribute to the inevitability of the death, which might possibly have been averted during that time. We are also assuming the absence of other conditions (however unlikely in practical terms), such as a spare head with an identical brain, and the technology and surgeons to replace the damaged one. These kinds of distinction are of no practical importance in empirical cases, where we do not need to know absolute sufficient causes, but when the claim being made is an absolute one, even the slightest doubt is enough to completely disable it. So, I see no circumstances in which it could be shown that consciousness is a sufficient cause of any phenomenon, quantum or otherwise.

9. History and paradigm shifts

Smetham's argument against Kuhnian paradigm shifts is a more interesting one. It arises as a response to my argument that many previous scientific theories in history, all confident of the absolute status of their own discoveries, have since been discredited, so current scientists should learn the lessons of history in avoiding such absolute claims.

> *Ellis asks "How many previous theories in human history have been proved wrong - the vast majority." But, we are not concerned with the entirety of human history, we are concerned with physics, and strangely enough "classical" physics took a pretty straight and undeviating course from the seventeenth century inception down to the end of the nineteenth century where upon the quantum revolution at the beginning of the twentieth century indicated a new level of reality had been reached, a level of reality with an astonishingly different mode of operation. Since then the fundamental features of the theory have remained stable, with a much greater knowledge of the detail accrued over time of course, plus*

> *the quantum interpretational problem, but that is a separate issue. The image of one scientific "paradigm" being continuously overturned, trashed and replaced and so on is actually an overplayed myth, perpetrated in large measure due to academic over-proliferation in the quest for philosophy PhDs. The only major shift in paradigm within science since the inception of the modern scientific enterprise has been from "classical" physics to relativity theory and quantum theory.*[29]

Smetham may not be concerned with history, but I make no apologies for being concerned with it. There is no absolute distinction between history and physics, given that history is the history of the same world that physics investigates, and the history of science includes that of physics. If Smetham is right and there were no great paradigm shifts in physics between the seventeenth and twentieth centuries, this hardly goes very far towards showing that there have not been important shifts at other times: the discrediting of Aristotelian and Pythagorean models at an earlier stage being perhaps the most important. He also admits here that there was a paradigm shift in the twentieth century. Even if we only accept two major paradigm shifts (or even, for that matter, one) this is quite sufficient to illustrate my point about the unreliability of theories that may seem certain now when judged in the light of possible future history.

He goes on:

> *Furthermore, again, the notion that the history of physics is littered with a huge number of authorities being "spectacularly" incorrect is simply wrong. The notion that Planck, Heisenberg, Schrodinger, Bohr, Born, de Broglie, Dirac, Bohm, Wheeler, Feynman ….. etc. etc. are all going to be "spectacularly" incorrect en mass is, well, I won't use the f-word. Of course there will be some interpretative theories which turn out be unworkable. But the notion the entire quantum paradigm is going to be found fundamentally and spectacularly wrong?*[30]

This suggests a misreading of the idea of paradigm shift as it is found in the work of Thomas Kuhn and Imre Lakatos[31]. Neither of them depicts paradigm shift as either fundamental or spectacular. Rather there is an ambiguous period of shift when an old research programme gradually ceases to be fruitful, and is only slowly abandoned in favour of an emerging new research programme. If a theory that explained some phenomena for a while fails to provide testable new predictions, and a new theory that is available is gradually seen to explain previous successful results better and offer new testable predictions, then scientists will gradually drift from the old theory to the new. However, people's attachment to their theories can scarcely be overestimated, and to me it often seems astonishing (and a testament to the effectiveness of scientific tradition) that old paradigms ever get abandoned at all, given the amount of psychological resistance set against new theories.

Old paradigms do not disappear with a bang, but if one imaginatively takes the long view, there is still no reason why, in another 24 centuries or so, Smetham's list of august physicists might not seem as antiquated and superseded as a list of presocratic philosophers does now. Smetham argues that paradigm shifts are 'overstated', but only because he has overstated them. Even one relatively weak paradigm shift in history would be enough to prove the point.

Smetham argues later:

> *[The advent of quantum physics] really was a seismic change in our understanding of the "physical" world, but we are not faced with a bunch of "classical" physicists completely unable to comprehend another bunch of "quantum" based physicists and vice-versa. Physicists today comprehend the nature of both theories; it is the puzzle of how they fit together which is the crucial issue.*[32]

This again is quite compatible with the Lakatosian and Kuhnian accounts of paradigm shifts, whereby shifts are neither clear-cut nor necessarily obviously completed at a particular point. Even if it turns out that the two kinds of physics can actually be reconciled by a new higher theory, this will not invalidate the most important point to be drawn from the story of the fall of Newtonian physics. Newtonian physics once thought it was absolute, and the paradigm shift means that it no longer is so. If quantum physicists adopt a similar attitude of arrogance in claiming an absolute status for their discoveries, their memories must be short indeed and their capacity to learn from history severely limited, for the fall of Newtonian physics from absolute status is not even past history, but is evidently still going on today. It will only be finally completed when a new 'unified' theory can more completely explain its apparent successes as well as its failures.

Finally, one of Smetham's most interesting points concerns the incrementality of conceptual evolution:

> *An investigation of the concept of "mass" for instance reveals that its origins are clearly in simple human experience of pushing around "massive" objects and this fundamental and primal aspect of the meaning of the term still operates within the various much more rarefied conceptual surroundings of physics. Concepts generally evolve through sequences of accumulating differences accruing upon a basic similarity.*[33]

His point about mass is that of Lakoffian linguistics: that meaning is rooted our basic physical experience and then becomes abstracted through metaphor (see section 12 below). I would entirely agree with him about this basis for the meaning of "mass", but this does not contribute towards supporting the arguments against paradigm shift that he wants it to support. If concepts maintain a basic continuity over time due to their physical rootedness, the same cannot necessarily be said about theoretical beliefs. Theoretical beliefs assemble these concepts into representational claims about reality as we experience it, and the classification of entities and causal claims made in such theories may change regardless of continuity in the meaning of the words from which they are constituted.

10. Falsification

My work on Middle Way Philosophy makes quite a lot of use of the concept of falsification, inspired by the writings of Popper and Lakatos but with considerable modifications of their approach[34]. Smetham responds to what he takes to be my approach to falsification in three different ways involving different arguments:

a. He claims that the fact that scientists were attempting to falsify quantum 'Reality' when they discovered evidence of it shows that their findings are falsifiable.
b. He claims that if there are two provisional theories explaining the same phenomena and one of them is falsified, then the remaining one is no longer provisional.
c. He argues that in the absence of absolute falsification, the principle of falsification, and indeed the wider arguments of Middle Way Philosophy, are unfalsifiable.

I will respond to these distinct arguments in turn.

a. Smetham writes:

> *"Quantum theory was not wished upon us by theorists. It was (for the most part) with great reluctance that they found themselves driven to this strange and, in many ways, philosophically unsatisfying view of the world."*

> *This is an important point to bear in mind because it lends great weight to the discoveries of quantum theory. The remarkable features of quantum functioning were not unearthed by physicists who set out to uncover them; quite the opposite. The American experimental physicist Robert Millikan, for instance, could not accept Einstein's picture of the light photon as both wave and particle and he therefore set out on a series of difficult zhistory gives us an indication that in the past, people have often conceived only a restricted range of explanatory theories, not including the ones that we now consider the best available explanations of important phenomena. For example, the now accepted theory that lightning is electrostatic discharge was not considered until the investigations of Benjamin Franklin in the eighteenth century. We have no way of anticipating new and more fruitful explanatory theories that we have not even imagined yet, but comparison with the past suggests that we would be very rash to rule them out.*

This determination to falsify is indeed very much to the credit of the scientists concerned, and lends weight to their findings – to the extent that their findings were actually falsifiable in the first place. However, falsification can only be sought of claims that are falsifiable. Claims about the reality accessible to scientific investigation, such as claims about the appearance of light as both wave and particle judged from evidence about the behaviour of light, can indeed be falsifiable. However, a metaphysical claim such as the disproof of Descartes' materialism, goes far beyond such evidence and cannot be falsified by it, because any evidence about the behaviour of light tells one only about the behaviour of light, not an interpretation of that behaviour that rules out the very possibility of other unobserved causal factors beyond consciousness.

b. Smetham writes further:

> *On Popper's view, then, theories are weeded out by being falsified by experimental testing.*

> *An interesting situation, then, would arise when after an amount of time we might be left with only two mutually exclusive and mutually exhaustive theories "provisionally" accounting for some phenomenon. Presumably if one of these were to be falsified then the other would then have to lose it status of "provisionality" and thus actually become the final and ultimate theory, there being no possible alternative. So, if we accept Popper's "falsifiability" account of scientific knowledge, then the Mind-Matter metaphysical tussle for equality or supremacy within Western philosophy has indeed now been decided by the fact that quantum physics has shown "matter" to be an illusory category of reality. Thus quantum physics would indeed, on Popper's philosophy of science, count as "experimental metaphysics."*[35]

Smetham misunderstands Popper's view if he thinks that it implies that provisional theories lose their provisionality when alternatives are weeded out. The value of falsification theory generally is that it leaves scientific theory as acceptable whilst it is falsifiable but unfalsified. With this provisional status it is never subject to final verification, but provisionally acceptable whilst it meets those criteria. If Popper thought that absolute verification could be achieved by ruling out alternatives he would have been a type of verificationist, not a falsificationist. Peter Muns explains this point well in relation to Popper's theory:

> *A falsifiable but unfalsified theory is provisionally true and should therefore be called verisimilar rather than true. The concept of verisimilitude (truth-likeness) corresponds to the concept of adaptation. Adaptations are rarely perfect. To be selected, a feature only needs to be more adapted than its competitors.*[36]

The weeding out of alternative theories does not yield absolutely conclusive results because we have no guarantee that all possible explanatory theories have been considered. Again, history gives us an indication that in the past, people have often conceived only a restricted range of explanatory theories, not including the ones that we now consider the best available explanations of important phenomena. For example, the now accepted theory that lightning is electrostatic discharge was not considered until the investigations of Benjamin Franklin in the eighteenth century. We have no way of anticipating new and more fruitful explanatory theories that we have not even imagined yet, but comparison with the past suggests that we would be very rash to rule them out.

c. Smetham thus appears to be supporting the general principle of falsification, but at the same time claiming that falsification can be absolute, an assertion that runs entirely against the spirit of falsification as Popper conceives it. Both Popper and Lakatos recognised that no falsification could be absolute, and attempted to work with this limitation in falsificationism. The basic reason for this is that any observation taken to offer a falsification is itself fallible and open to a variety of possible interpretations. Nevertheless, Smetham argues that if the principle of falsification is not absolute, it must be self-contradictory:

> *Here again we find Ellis proclaiming the impossibility of true knowledge. Even with the cherished principle of falsification in place "there can be no absolute falsification" because the principle itself is beyond "justification" within our "experiential framework of objectivity." This*

> *would mean, of course, that the principle of falsification is itself unfalsifiable; which further means that, by Ellis' own proclamations, the principle itself, as employed within Ellis' perspective, becomes dogmatic metaphysics.*

Smetham's claim here takes us back to section 1 and the supposed paradox of scepticism. The principle of falsification can only be contradicted by a lack of absolute falsifiability if one assumes in the first place that the principle of falsification is a metaphysical theory requiring absolute rather than provisional justification. However, the principle of falsification, like any other provisional theory, can only be incrementally justified by the falsifiable theories that it supports, that remain falsifiable but unfalsified and continue to offer lines of fruitful research.

If one insists on taking the principle of falsification metaphysically, just like metaphysical agnosticism and Middle Way Philosophy in general, it will be unfalsifiable and/or self-contradictory in those terms, just as metaphysics is unfalsifiable and self-contradictory in the terms of Middle Way Philosophy. Thus we are taken back to the questions of circularity and burden of proof discussed in section 5 above. In addition, I will later be discussing the practical justifications that can be given for the avoidance of metaphysics. These are practical justifications that support the sphere of science as much as any other.

A much more reasonable, and interesting, question remains, as to how one should understand falsification if not in absolute terms. This is where I find that the initial insights of Popper and Lakatos run into the sand. Both of them believe in objective progress in science, but because of their steadfast refusal to seriously consider psychological explanations for scientific objectivity, they can only give us appeals to the conventionally accepted scientific results of today as apparently self-evidently more objective than those of yesterday, without really explaining what kind of objectivity has made them better.

My proposal in response to this problem is that justification depends on both coherence in the explanation of evidence and recognition of fallibility, and that both of these can be considered with greater degrees of adequacy where there is integration. The progress of Western science in helping us to engage with conditions, then, can be explained by the degree of integration both amongst the community of scientists (who have gradually improved the rigour of their methods so as to both offer coherent theories and allow for fallibility) and in the psyches of scientists, whose coherence and sense of fallibility in creatively developing theories has helped the scientific community to make progress.

The insights of Popper and Lakatos, then, can be adapted to a psychological explanation of scientific objectivity by thinking of falsification, not as a decisive event that happens to a theory regardless of who is testing it, but as an important part of the attitude of the person (or the group) believing in and testing the theory when they make judgements. A recognition of the fallibility of a theory is required to actively consider negative outcomes and to accept them when they occur, but it is a balancing of that sense of the fallibility of a theory with the grounds we have for confidence in it that helps us to make more objective judgements about when a theory has been falsified, and neither prematurely abandon it nor hang onto an unfruitful theory too long. This is the direct application of the Middle Way in scientific judgement.

This approach to falsification plays an important part in helping us to distinguish between theories that are metaphysical (and thus unfalsifiable) and those that are provisional (and thus falsifiable). A theory is only falsifiable if the person believing in it holds a provisional enough belief in it to allow it to be falsified, for the ambiguities of evidence by themselves cannot convince those who are deeply attached to a belief and are determined to make the evidence fit the theory. The nature of the belief contributes to falsifiability (for example, a falsifiable theory fruitfully yields opportunities for testing), but it is not enough by itself without a psychological state of provisionality. Similarly, the nature of a metaphysical belief makes a large contribution to it being unfalsifiable, when any experience can be readily explained to fit that belief, but we also have to consider the psychological function of that belief and the context in which it is habitually used in order to judge its unfalsifiability.

Another strength of this approach to falsification is that it allows similar criteria to those used to judge beliefs in formal scientific settings to also be applied by individuals making personal judgements. For individuals the parameters of when a theory is judged to have failed its test are individually determined, yet not necessarily merely 'subjective' because outside a scientific community. Individuals have to both determine their standards and judge when they have been breached, but it is the objectivity of the individual concerned judged psychologically that allows us to assert that some such judgements are more adequate than others. If individuals subject their beliefs to such tests they are acting in a more objective way that allows progress in addressing conditions, compared to those that merely accept unfalsifiable beliefs that help them to be accepted by a group and that are not subjected to genuine investigation.

11. Scientific exceptionalism

So, having dealt with a range of Smetham's philosophical assumptions, we finally come to the point that Smetham obviously considers central to his paper: the claim that the violation of Bell's inequality conclusively proves a metaphysical point about underlying Reality: namely the falsity of the Cartesian conception of absolute matter. It will be obvious by now that I do not accept this claim, firstly on the grounds that no empirical evidence could ever prove a metaphysical claim, and secondly on the grounds that acceptance of such a metaphysical claim would in any case do us no good, but would distract us from the insights offered by the Middle Way and from the quest for objectivity. I will concentrate on the first point here, but the second, which gives a wider and more important pragmatic context to my case against metaphysics in general, will be considered in the final three sections.

Smetham's argument appears to be that certain experiments in Quantum physics, but particularly those related to Bell's inequality, provide a scientific exception to the norm. Even if normal science (outside quantum physics) provides us only with provisional conclusions, he seems to be arguing, quantum physics gives us absolute certainty about metaphysical truth.

> *the metaphysical belief in the existence of independent and solid Cartesian type "matter" has been shown, admittedly in a scientifically "incremental" manner, within our own experience to be completely false.... the falsification of Cartesian type matter is not "provisional" it is actually final.... this conclusion, or one like it, is necessarily established by the fact that the precise analysis of our experience indicates that,*

> *whatever "Reality" might be, it cannot be made up of "those tiny bits of matter that Newton imagined the universe to be made of," as Stapp puts it.... If "Reality" were to be made up of tiny "solid bits of matter", then it simply could not exhibit the phenomenon of quantum entanglement, an issue we now need to investigate in a little detail. And, after we have done so we shall find that Ellis" claim that:*

> > *We do not ultimately know whether or not the world is actually made up of absolute things that either exist or don't exist,…*

> *…is actually false.* [37]

To support this claim, Smetham gives a detailed account of a number of experiments in quantum physics, far too long to quote. However, one can summarise the implications of these experiments in Smetham's interpretation as follows:

1. The characteristics of quantum phenomena are dependent upon the observer.
2. There is an unexplained relationship of 'entanglement' between one particle and another, such that the observation of one appears to affect the observation of the other.
3. This experimental evidence can be interpreted as metaphysical using the philosophical framework of 'Constrained metaphysical relativism':

> *This is the metaphysical position that it is the very nature of "Reality", not to be unknowable, as Ellis maintains, but to be knowable in various manners which are consistent with, and constrained by, its inner nature. Furthermore the inner, or absolute nature of reality, is indicated by the overlap between various different aspects which are consistent with appropriate experience.*[38]

4. This Constrained metaphysical relativism is claimed to be consistent with 'model dependent realism' where, despite the dependence on models that are relative to observers, "negative metaphysical decisions are possible" [39] by ruling out falsified models.
5. The violation of Bell's inequality shows conclusively that 'Reality' cannot be made up of "independent, completely solid and self-contained units of 'matter' "[40], despite disagreement between scientists as to the precise philosophical implications beyond this.

A number of the assumptions Smetham makes here have already been discussed. The dependency of quantum phenomena on the observer, as I argued in section 8 above, does not necessarily imply its sole dependence on the observer or its independence from other processes beyond the observer that are unknown to us. The idea that falsification can be absolutely decisive was also dealt with in section 10 above. 'Constrained metaphysical relativism' depends on the assumption that Reality is knowable, a metaphysical assumption that leads us to the issues with circularity and burden of proof discussed in section 5 above. These points alone would be enough to refute Smetham's claims here, because the process of elimination of theories that he describes cannot be absolutely decisive unless all other

possible theories and all other possible operations on the phenomena have been ruled out – which they cannot be.

The unexplained relationship of 'entanglement' is precisely that – an unexplained relationship. That the fact of the experiments Smetham describes appear to run against "solid bits of matter" does not show with certainty that no such "solid bits of matter" exist, or that the apparently linked particles are "Really" mind. Many other hypotheses are possible to explain these mysterious relationships between particles. The much-maligned Noddy and Big Ears would do, or force fields from alien space craft, or of course the direct intervention of God (we could resurrect a version of the parallelism of Leibniz or the occasionalism of Malebranche!). As argued in section 6 above, no one metaphysical claim is any more likely than another, as all have zero probability given that we have no experience to judge their probability on.

Rather than rushing into metaphysical explanations for 'entanglement', I think we would be far better advised to merely acknowledge a mystery for which we have no clear explanation as yet. My argument here is no different to the one I would use in parallel cases of religious claims. For example, where prodigal children show inexplicable knowledge of the lives of others who lived before them, we should not rush into the belief that this 'proves' rebirth or reincarnation when there are lots of other possible explanations[41]: thought waves, divine intervention, stray memories without bodies etc. The reason that people overwhelmingly favour one kind of metaphysical explanation for these mysterious cases over others appears to be just that this is the one favoured by their group or culture. But if we are honest, we just do not know. Let's leave it at that and stick to formulating theories about phenomena which are actually fruitful, specific and incremental enough to be tested further in experience.

12. The linguistic context

Before concluding this paper, however, I want to say a bit more about my second level of objection to metaphysics. Not only is metaphysics not informative as a way of telling us about the universe, but it also needs to be avoided for practical reasons, as detracting from objectivity rather than supporting it. One of the basic reasons for this relates to the way in which we understand the meaning of language.

The dominant theory of meaning in Western philosophy is the truth-conditional theory of meaning. According to this, the meaning of a proposition consists in the circumstances in which it would be true. There have been variations on the classic version of this theory, and there are Wittgensteinian challenges to it, but all these theories maintain a basic assumption that meaning consists in a relationship between propositions and states of affairs that they represent. I thus call these kinds of theories *representationalist*[42].

The major defect in representationalist theories of meaning is that meaning consists solely of a relationship between a represented world and a real or hypothesised one. This approach unnecessarily divides meaning from meaningfulness, removing affective factors from our understanding of meaning so that meaning is understood as entirely cognitive. But our experience of meaning does not merely develop cognitively, but through physical experience, as discussed by Smetham in relation to mass (see above section 12), and our physical condition and emotional state can never be completely separated from the meaning we experience in language. The linguistic theory of George Lakoff provides an alternative

understanding of the meaning of language as experienced through our physical bodies, and gradually abstracted through metaphorical extension[43].

This matter of semantic theory becomes important to our judgements about scientific and metaphysical theories, when we consider what the language that composes such theories means. Undoubtedly, all theories aim at representation of a real or hypothesised reality, but if meaning has an emotional and bodily component, this representation does not exhaust the meaning of a theory. Theories are both written and interpreted within a certain physical context, and our understanding of them is shaped not by an absolute one-to-one relationship between words and hypothesised reality, but by the physical and emotional conditions impacting our interpretation. For example, one will be more interested in a theory and interpret it more charitably if one finds it interesting, rather than considering it with boredom and alienation.

This recognition of an affective element in the meaning of a theory has important implications. The meaning of a theory, although it strives towards pure representation, is incapable of achieving it because its language not merely representational. Not only will the words of the theory depict reality imperfectly, but they will make an impression on us partly through the impact of the form of the intended depiction rather than the representational content. I would not conclude from this that theories are irredeemably 'subjective', because, unlike Hume, I do not identify passion with irredeemable subjectivity and reason with objectivity, regardless of the psychological context of reason and passion. Rather, the objectivity of a theory comes not from an absolute correlation with reality (or Reality) but from the degree of integration (both cognitive and affective) of the judgements it embodies.

If we adopt this approach to meaning, not only must the objectivity of scientific theories be re-assessed as the product of scientific judgements rather than correct theories, but metaphysical theories become indefensible. Metaphysical theories depend entirely on the idea of representation: that a particular form of words corresponds to Reality. In Smetham's case, for example "the falsity of Cartesian type matter" is taken to represent a state of affairs. This absolute state of affairs is not one that language is capable of absolutely representing.

My argument about the meaning of metaphysical statements is that their meaning is in practice highly dependent on their emotional impact in relation to the group that supports a metaphysical belief. It has a hypothesised representational content, but this representational content is so abstracted that it cannot be related to experience directly at all. It is thus highly dependent on group associations to provide it with meaning. The meaning of a term like "Natural Law" for example, is highly charged and given rich associations by the group in which it is used, and thus becomes a matter for intense dispute between groups, even though when analysed it is so ambiguous as to mean very little that is specific in terms of the representation of experience.

Many scientific discoveries have a strong representational relationship to things we experience, and have led us to experience them differently. I may feel slightly less terrified of lightning if I understand it as electrostatic discharge rather than thunderbolts hurled by a vengeful deity. I think differently about the experience of meditation through being aware that absorbed meditational states correspond to changed patterns of brain functioning that have been called alpha waves. However, I remain at a loss to understand how "the falsity of Cartesian type matter" is meant to mean anything to anyone beyond a rallying point for

fruitless intellectual dispute. Even for quantum physicists, the design of further experiments to investigate entanglement cannot be positively influenced by this interpretation, for it offers no new testable predictions.

13. The psychological context

I have already mentioned several aspects of my psychological case against metaphysics. Broadly, this case is that metaphysical beliefs function psychologically so as to prevent integration and thus objectivity. Considerable initial support can be given to this case by the study of cognitive biases, all of which can be understood either as part of a mechanism for defending metaphysical beliefs in general, or for supporting specific metaphysical beliefs[44]. Some examples of cognitive biases which form part of the psychological explanation for the attractiveness of metaphysical beliefs are attribute substitution (which leads us to prefer simple answers)[45], belief bias (which short-circuits reasoning)[46], confirmation bias (where evidence is sought to fit a theory)[47], ingroup bias (where group beliefs are held dogmatically)[48], information bias (where more information is sought regardless of practical relevance)[49], and system bias (where existing systems of thought are favoured over new)[50]. An accumulation of psychological evidence points to the view that humans often (though not inevitably) favour metaphysical views over provisional ones because they bolster security, maintain a place in a group, and save investigatory effort.

However, my own work goes further than this in putting forward an integrative theory that explains the role of metaphysics in preventing investigation. Given that all beliefs are motivated by desires and are used to create a represented context in which desires may seek their fulfilment, and that different desires held at different times or by different individuals or groups may conflict, our desires at a particular time often try to obtain egoistic supremacy by suppressing other contradictory desires and their associated beliefs. Our desires and beliefs at different times may be increasingly integrated by a process of developing habitual awareness, but this process is prevented by desires that wish to maintain dominance and maintain suppression of contrary desires. An important tool for such desires are beliefs that are resistant to such integration because they claim total justification, and appear to be immune to cognitive attack from other beliefs. Metaphysical beliefs fulfil this role because they are self-justifying and not subject to evidence which could help 'reason' (that is, awareness being extended using reasoning based on a wider range of experience) to undermine them. A metaphysical belief is a kind of cognitive castle – an apparently impregnable fortification – but one that stands needlessly in the way of the peaceful unification of beliefs (and hence desires) both within and between individuals, insisting on war to resist peaceful federation[51].

Integration of belief is central to successful investigation, because beliefs become integrated by taking more conditions into account. A metaphysical belief meeting another one cannot be integrated, because the two beliefs each claim absolute authority, have no basis for compromise, and are impermeable to evidence from experience that might form a dialectical basis for their integration. Two opposed provisional beliefs, on the contrary, can be integrated by investigating the experiences used to support them, and incorporating all those experiences in a new, more adequate belief. Provisional beliefs are not fundamentally opposed to this process because part of their psychological conditions includes an awareness of fallibility.

Thus a scientist who adopts provisional beliefs is capable of making further investigatory progress (a point that links with my psychological explanation of falsification in section 10), whilst one who adopts metaphysical beliefs (at least in the area affected by her metaphysical belief) is not. To echo Popper, provisionality is science, but metaphysics is inimical to scientific investigation. Even if that metaphysics is in some way claimed to be derived from science, as in Smetham's claims about quantum physics, it is opposed to the very process that makes scientific method successful in improving the objectivity of its judgements. Such metaphysics is not science, but scientism.

14. The ethical context

Finally, another important area relevant to this discussion but ignored by Smetham is that of ethics. Perhaps its relevance will surprise many scientists and analytic philosophers who take the fact-value distinction for granted. Facts, they may argue, are the preserve of science, whereas ethics is in the separate area of 'values', which (according to one's philosophical persuasion) is a matter of social convention, individual preference, emotion, mysterious intuition, or dogmatic assertion. Central to Middle Way Philosophy is the argument that the fact-value distinction is mistaken and that ethics, just as much as facts, are a matter for *incrementally objective investigation through experience*. If this argument is right, there are also ethical reasons for rejecting metaphysical beliefs.

First, let me summarise the reasons for rejecting the fact-value distinction. This distinction is based on Hume's argument[52], later reinforced by Moore[53], that no 'ought' can be validly derived from an 'is': that is, value claims cannot be logically supported by factual claims, only by other value claims. This abstract analysis may be correct in abstract terms, but it seldom seems to be appreciated that it is an empty analysis. In our experience, there are no such things as pure factual claims without value implications, because all factual claims have to be made in a physical context where a flesh-and-blood being is asserting them with a value motive for doing so. Conversely, there are no pure value claims, because all values must relate to assumed facts in a hypothesised world to be values that relate to our experience in any way[54]. Science, then, is in practice riddled with values, and indeed sustained and made objective (as I have already argued) by values of provisionality, rigour, observational thoroughness etc.

We need to decisively reject the pervasive prejudice, inherited from Hume, that values are necessarily 'subjective', and thus that the recognition of the ways that values reflect desires will lead to moral relativism (as it effectively does for Hume). Instead, if we think of desires as subject to integration and more integrated desires as being better able to address conditions, desires become capable of differentiation in terms of their adequacy and objectivity just as beliefs do. Greater integration allows us to become morally better because our desires become more broadly based values, based on a wider awareness, a more coherent and provisional hypothesised world-view, and a judgement that takes more conditions into account. Our strength and consistency of character, our consistency balanced with realism in applying principles, and our awareness of the consequences of our actions, all become greater with integration. It is by thinking of ethics incrementally in this way that we can maintain an understanding of moral objectivity, with some judgements being better than others, whilst avoiding absolute or metaphysical bases for ethics[55].

Just as I have argued that metaphysical beliefs interfere with scientific objectivity, simultaneously I would argue that metaphysical beliefs also interfere with moral objectivity. Far from helping us to address more moral conditions, metaphysical beliefs about ethics (e.g. belief in absolute moral instructions revealed by God) provide a fortified set of values that are impervious to new experience that challenges them. In addition to there being scientific reasons for avoiding metaphysics in science, then, there are also moral reasons for avoiding metaphysics in science.

The relationship between metaphysical beliefs and individual behaviour is admittedly complex, so I would certainly not wish to over-simplify it by accusing Smetham, or any other physicist holding metaphysical beliefs derived from quantum physics, of specific moral failings as a result of it. In order to begin to relate a person's metaphysical beliefs to their moral character one needs to know them quite well personally. Nevertheless (to speak broadly and impersonally), the idealism recommended by Smetham can potentially be used directly or indirectly to support many kinds of moral rigidity. For example, the belief that mind and nature are one can be used to support cosmic justice beliefs such as the theory of karma (in either its Hindu or Buddhist versions), where it is believed that mental actions lead to proportionate results in 'nature', and often that events from 'nature' that occur to us are the results of our mental actions. This belief must then be maintained regardless of the contrary evidence offered by experience that things may happen to us by chance or due to conditions that are completely unrelated to our mental states: even a large asteroid hitting the earth and destroying humankind would have to be explained as the result of the mental choices of all. Even if one adopts a liberalised view of karma that allows for tragedy and claims only that all our mental actions must have proportionate effects at some point in the future, this idea requires a dogmatic identification with beliefs that go far beyond our experience[56].

The law of karma is only one example of an extremely unhelpful moral belief that *might* be supported by Smetham's insistence on 'Mindnature'. Of course, Smetham may credibly deny that he personally believes this, or any other of many other further metaphysical beliefs that could be derived from it, such as revelations from enlightened states or Hegelian beliefs in the purpose of history. The point remains that metaphysical beliefs have a tendency to beget more metaphysical beliefs[57], and that metaphysical beliefs in general are morally obstructive. It is thus not just scientifically but morally irresponsible to spread metaphysical beliefs, especially in a context like science which in the recent past has been developing in a way that is largely free of them.

Conclusion

I hope this paper has made it clear that although not a scientist myself, I am a supporter of science and the use of scientific method. The findings of quantum physics, including the violation of Bell's inequality, are both interesting and mysterious. I would not wish to underestimate their *scientific* importance in the least.

Nevertheless, I wrote the passage in *The Trouble with Buddhism* that triggered Smetham's critical attack out of concern at the abuse of quantum physics for purposes that are not scientific, but scientistic. Not only some Buddhists, it seems, but also some quantum physicists themselves, are seeking to make metaphysical capital out of the empirical results of quantum physics. As I have argued, this is not only unjustified but also practically unhelpful in both scientific and moral terms. I can only assume that the physicists concerned have done

this because they do not fully understand the enormous and unfortunate implications of the short step over the boundary from physics into metaphysics.

There remains a good deal of scope for argument, I will concede, as to the precise boundary between metaphysics and provisional theory. I have defined metaphysics according to its psychological function, and there is a general relationship between assertions with a certain type of absolute and unfalsifiable representational content and this psychological function, not an absolute one. Nevertheless, Smetham does not deny that the assertions he is making are metaphysical assertions, and there are many other examples of assertions that are clearly metaphysical, whatever the possible debates about boundary cases. Such alleged boundary cases often include general theoretical assertions at a high level of abstraction, such as those of Middle Way Philosophy, or indeed of many top-level scientific theories. However, my argument is that these kinds of cases are not metaphysical, primarily because they do not *function* as such: they yield further testable hypotheses rather than staking an absolute claim and closing down further investigation, and are decisive in their rejection of metaphysics only in able to protect our capacity to continue investigation. It is the practical context and purpose of this philosophical approach that needs to be appreciated to avoid many of the misunderstandings Smetham has of it. Middle Way Philosophy aims to clear the ground for practical progress.

[1] Graham Smetham *The Matter of Mindnature* p.2 (quoting me)
[2] For more details see Adrian Kuzminski, *Pyrrhonism*, Lexington Press 2008
[3] Smetham op cit p.14
[4] Ibid p.2
[5] Ibid p.2
[6] Ibid p.3
[7] Ibid p.13
[8] Smetham cannot have read my very critical work on Plato: see Robert M. Ellis, *A Theory of Moral Objectivity* section 3d (Lulu 2011) or http://www.moralobjectivity.net/Plato.html
[9] See Ellis op cit section 6c, or http://www.moralobjectivity.net/thesis6c.html for more details.
[10] See http://www.moralobjectivity.net/Buddhist_errors.html
[11] See http://www.moralobjectivity.net/concept%20-%20justification.html
[12] Ibid
[13] Smetham op cit p.14
[14] Ibid p.9
[15] Ibid p.23
[16] Ibid p.8. There seems to be a contradiction in the final sentence, which would make more sense if 'so' was used in the place of 'otherwise'.
[17] See *Culamalunkya Sutta* (Majjhima Nikaya 63), and several other places in the Pali Canon.
[18] See http://www.moralobjectivity.net/cognitive_bias.html for some preliminary work in this area. I hope to write on it in more depth in future.
[19] See http://www.moralobjectivity.net/concept%20-%20integration.html
[20] See Robert M. Ellis, *A Theory of Moral Objectivity* chapter 2 (Lulu 2011)
[21] For brief accounts of these terms see http://www.moralobjectivity.net/concepts.html . For detailed accounts, including the different ways in which eternalism and nihilism have appeared in the history of Western thought, see Ellis op cit chapters 3 (on eternalism) & 4 (on nihilism).
[22] Smetham op cit p.9
[23] Ibid p.10
[24] For a brief account of the role of groups in Middle Way Philosophy, see http://www.moralobjectivity.net/concept%20-%20group.html, and for a more detailed discussion see *A Theory of Moral Objectivity* section 6d. Cognitive psychology also gives further evidence of this process in its observations of ingroup bias, belief bias and confirmation bias (see note xviii).
[25] Smetham op cit pp.10-11
[26] Ibid p.11
[27] See *Culamalunkya Sutta* (Majjhima Nikaya 63)
[28] Smetham op cit p.12
[29] Ibid p.13
[30] Ibid pp 13-14
[31] See Thomas Kuhn *The Structure of Scientific Revolutions* University of Chicago Press 1996 (3rd edn) and Imre Lakatos "Falsification and the methodology of scientific research programmes" from *Criticism and the Growth of Knowledge* ed. I. Lakatos and A. Musgrave, Cambridge University Press 1974.
[32] Smetham op cit p.34
[33] Ibid
[34] See Robert M. Ellis *Truth on the Edge* (Lulu 2011) p.54-8, and *A Theory of Moral Objectivity* (Lulu 2011) sections 2b and 6c.
[35] Ibid p.17
[36] Peter Muns "*Popper's Darwinism"* from *Karl Popper: A centenary assessment, volume 3,* ed. Ian Jarvie et al (Ashgate 2006), p.138
[37] Smetham op cit p.27
[38] Ibid p.35-6
[39] Ibid p.36

[40] Ibid p.44
[41] See Robert M. Ellis *The Trouble with Buddhism* (Lulu 2011) p.137 ff
[42] See http://www.moralobjectivity.net/concept%20-%20representationalism.html. This use of the term should not be confused with the same term used in the analytic philosophy of perception to mean indirect realism or idealism.
[43] See George Lakoff, *Women, Fire and Dangerous Things* (University of Chicago Press 1987). This is also discussed in Robert M. Ellis, *A Theory of Moral Objectivity* (Lulu 2011) 2.c.iii.
[44] See note xviii
[45]See Daniel Kahneman & Frederick Shane, "Attribute Substitution in Intuitive Judgment", in Mie Augier, James G. March *Models of a man: essays in memory of Herbert A. Simon* (MIT Press,2004) pp. 411–432
[46] See J. Evans, J.L.Barston & P. Pollard, P, "On the conflict between logic and belief in syllogistic reasoning" *Memory and Cognition* 11, pp 295-306
[47] See Margot Oswald & Stefan Grosjean, "Confirmation Bias", in Rüdiger Pohl, *Cognitive Illusions: A Handbook on Fallacies and Biases in Thinking, Judgement and Memory* (Psychology Press, 2004) pp. 79–96
[48] See P. W. Linville, "Polarized appraisals of out-group members", *Journal of Personality and Social Psychology* 38 (5), pp. 689-703
[49] See J. Baron, J. Beattie & J.C. Hershey, "Heuristics and biases in diagnostic reasoning: II. Congruence, information, and certainty" *Organizational Behavior and Human Decision Processes*, 42, pp. 88-110.
[50] See John T. Jost et al "A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo", *Political Psychology* 25, pp. 881–919
[51] The theory outlined here is central to Robert M. Ellis *A Theory of Moral Objectivity* (Lulu 2011). More details can be found throughout, but especially in section 2.a and chapter 5.
[52] David Hume *A Treatise of Human Nature* (Oxford,1978) p.469
[53] G.E. Moore *Principia Ethica* (Cambridge University Press, 1959)
[54] For more details see http://www.moralobjectivity.net/assumptions%20-%20fact-value.html
[55] For more details see Robert M. Ellis, *A New Buddhist Ethics* (Lulu 2011) chapter 1 & *A Theory of Moral Objectivity* (Lulu 2011) chapter 8 (and more broadly passim).
[56] See Robert M. Ellis *The Trouble with Buddhism* (Lulu 2011) chapter 4
[57] See further analysis of the way different groups of metaphysical beliefs tend to support each other, see my accounts of eternalism and nihilism respectively in *A Theory of Moral Objectivity* sections 3b and 4a.