SCIENTISM AND THE ARGUMENT FROM SELF-REFERENTIAL INCOHERENCE

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1. Introduction
An influential idea in science, philosophy, and popular science writings these days is that science and natural science in particular reliably lead to rational belief and knowledge, whereas non-scientific sources of belief do not. This view is often referred to as ‘scientism’. Nowadays, the word is even adopted as a badge of honour: Alex Rosenberg, James Ladyman, Don Ross, David Spurrett, and others call themselves adherents of scientism and defend it in detail.¹

In this paper, I discuss a specific argument against scientism, bypassing the arguments for scientism and other arguments against scientism. I call it the ‘argument from self-referential incoherence’. The point of the argument is that scientism itself is not supported by natural science and, therefore, on scientism itself scientism cannot be rationally believed or known. I also argue that this counts against scientism. The latter might seem obvious, but is an important additional argumentative step, because it is not necessarily a theoretical vice for a thesis not to meet the conditions laid out in it. In fact, it is sometimes a virtue. As George Mavrodes rightly points out, for instance, it is a virtue of an analysis of falsehood that it does not meet its own conditions—if it did, we would have to reject the analysis as a false one.² If scientism cannot be rationally believed or known, it is epistemically improper to believe scientism, but scientism might still be true. I, therefore, also defend the view that scientism’s self-referential incoherence provides us with good reason to reject it.

Of course, this is not the first argument from self-referential incoherence that has been put forward against a philosophical thesis. In the Thaetetus, Socrates already uses an argument from self-referential incoherence against Protagoras’ claim that man is the measure of all things.³ More recently, Alvin Plantinga has defended the claim that classical foundationalism is self-

¹ See Rosenberg 2011; Ross, Ladyman, and Spurrett 2007.
² And, mutatis mutandis, the same applies to analyses of lies. See Mavrodes 1985, 66-67.
³ See Plato 1977, 57-58 (171a-c).
referentially incoherent, Carl Kordig has provided a line of reasoning from self-referential incoherence against evolutionary epistemology, and both Richard Swinburne and Lynn Rudder Baker have argued that eliminative materialism is self-referentially incoherent. Thus, by arguing that scientism is self-referentially incoherent, this paper joins a venerable philosophical tradition of a particular kind of argumentative strategy.

The article is structured as follows. First, I explain in some more detail what scientism amounts to (§ 2). Subsequently, I spell out the argument from self-referential incoherence and show that it comes in several varieties (§ 3). Next, I discuss four responses that one might give to the argument. First, it may be argued that scientism itself is sufficiently supported by scientific evidence (§ 4). Second, one could suggest that we can embrace scientism and simultaneously make an exception for scientism itself—that is, rationally believe it, even though it does not meet its own criteria (§ 5). Third, one might propose that we should think of scientism as a thesis that is pragmatically rather than epistemically justified. (§ 6) Finally, it could be thought that scientism should not be interpreted as a thesis, belief, or assertion, but as something else, such as a stance (§ 7). I argue that each of these responses fails. I conclude that scientism is hoist by its own petard.

2. What Is Scientism?

Before I spell out the argument from self-referential incoherence, let us first consider scientism in some more detail. I take scientism to be a thesis that refers to the natural sciences, such as biology, chemistry, and physics, because paradigm cases of scientism are theses that put the natural sciences centre stage rather than, say, history or psychology. In fact, we find in the literature a substantial number of explicit statements to the effect that academic disciplines such as psychology should adopt the methods of natural science or even be reduced to natural science in order to deliver rational belief or knowledge. 

I focus on scientism as an epistemological rather than an ontological claim, that is, scientism as a claim to the effect that only science delivers rational belief or knowledge rather

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5 References.
than as a claim to the effect that only that exists which can in principle be investigated by science. For, this is how ‘scientism’ is usually understood. According to Ian Barbour, for instance, scientism is the claim that “the scientific method is the only reliable path to knowledge”. And according to Roger Trigg, it is the view that “science is our only means of access to reality”. This epistemological focus, though, still leaves room for a wide variety of theses. Let me point out two distinctions that can be used to further specify the variety of scientism in question.

First, scientism can be understood as the claim that only natural science (a) delivers rational or reasonable belief, (b) produces knowledge, or (c) reliably leads to rational belief or knowledge. These theses are conceptually distinct. One may take it, for instance, that non-scientific beliefs can still be rational or reasonable, but that they cannot constitute knowledge. Or one might think that non-scientific sources of belief incidentally rather than reliably produce knowledge. It seems that (a) is the strongest variety, whereas (c) is the weakest. For, if non-scientific sources cannot even produce rational belief, then surely they cannot lead to knowledge or reliably deliver rational belief, since knowledge entails rational belief, and if non-scientific belief sources cannot produce knowledge, they cannot reliably issue in knowledge. Here, I confine myself mostly to those versions of scientism that say that only natural science delivers knowledge, for if non-scientific sources can also deliver knowledge, then they can deliver rational belief, and the examples I will provide give us good reason that at least some of them can reliably deliver knowledge.

The second dimension along which varieties of scientism could be distinguished concerns the non-scientific sources of belief that are discarded. There is, of course, a wide variety of such sources: vision, taste, smell, hearing, and touch (the five senses), memory, introspection, metaphysical intuition, logical intuition, mathematical intuition, linguistic intuition, and so forth. Stronger versions of scientism will discard all these non-scientific sources of belief, whereas weaker versions will discard only some of them. Otto Neurath, James Ladyman, Don Ross, and David Spurrett, adopt a weaker version of scientism when they discard metaphysical intuition as

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6 For more on the relation between the two, see Peels 2015a.
7 Barbour 1990, 4; Trigg 1993, 90. See also De Ridder 2014; Pigliucci 2013, 144.
unreliable. Another weak version is embraced by Daniel Dennett and Eric Schwitzgebel, who claim that introspection is untrustworthy. Still others make a much more general claim, though. According to Alex Rosenberg, for instance, scientism

(…) is the conviction that the methods of science are the only reliable ways to secure knowledge of anything; that science’s description of the world is correct in its fundamentals (…) Science provides all the significant truths about reality, and knowing such truths is what real understanding is all about. (…) Being scientistic just means treating science as our exclusive guide to reality, to nature—both our own nature and everything else’s.10

Henceforth, I focus on the stronger version of scientism that says that in any domain of reality only natural science delivers knowledge. In the final section of this paper, I show what our discussion means for scientistic claims about particular domains, such as metaphysical intuition and introspection.

3. The Argument from Self-Referential Incoherence

I take it that a thesis is self-referentially incoherent if and only if it somehow explicitly or implicitly refers to itself and the thesis – sometimes in conjunction with one or two plausible principles – is incoherent at least partly in virtue of the fact that it refers to itself.11

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8 See Neurath 1987, 7-11; Ladyman et al. 2007, 1-65.
9 See Dennett 1991; 2003; Schwitzgebel 2011.
10 Rosenberg 2011, 6-8. For a similar claim, see Atkins 1995.
11 It seems to me this squares well with how ‘self-referential incoherence’ is usually defined. Joseph Boyle, for instance, defines a self-referentially incoherent thesis as one that “allegedly denies or cannot account for some condition that is required for it to make sense or be true. (…) a position or theory which refers to itself, that is to say, includes itself in its subject matter, cannot account for itself.” (Boyle 1972, 25)
Now, there are different kinds of self-referential incoherence. Steven Bartlett distinguishes two of them. In what he dubs cases of *pragmatical* self-referential incoherence, what is referred to falsifies the proposition in question. Here are two examples:

(1) There are no objective truths.
(2) There are no exceptions to the rule that all rules have exceptions.

(1) is self-referentially incoherent, because it claims as an objective truth that there are no objective truths, and (2) is self-referentially incoherent because it presents a general rule that is claimed to have no exception, but the general rule is that all rules have exceptions.

In other cases, which Bartlett calls cases of *performative* self-referential incoherence, a proposition is expressed in a manner that presupposes that certain conditions of reference are satisfied – otherwise the proposition would be neither true nor false – but the proposition entails that at least one of these conditions is *not* met. It will be more controversial which theses fall into this category, but here is one alleged example. According to Carl Kordig, the theory of radical meaning-variance is self-referentially incoherent. That theory, advocated by, among others, Benjamin Lee Whorf, says:

(3) It is impossible for there to be statements whose meaning or truth is invariant from theory to theory.

Kordig claims that this thesis is self-referentially incoherent, because it is presented as a true statement and as having the same meaning no matter what different theories we may hold, while it says that every statement varies in meaning or truth-value from theory to theory.

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12 See Bartlett 1988, 227-228.
13 For further interesting examples of pragmatical self-referential incoherence, see, for instance, John Buridan’s sophisms 7-12 (Hughes 1982, 61-93).
14 See Whorf 1957.
15 See Kordig 1971, 78-82.
We can distinguish further varieties of self-referential incoherence in addition to pragmational and performative self-referential incoherence. Among them is what I call *epistemic* self-referential incoherence. The following propositions have this feature:

(4) No proposition can be known.
(5) Any belief formed upon considering this proposition is irrational.

These propositions are self-referentially incoherent, because they respectively implicitly and explicitly refer to themselves and – in conjunction with a plausible principle about knowledge or rationality – are incoherent.\(^{16}\) If no proposition can be known, then (4) cannot be known either and if any belief formed upon considering (5) cannot be rationally believed, then (5) cannot be rationally believed. I say ‘in conjunction with a plausible principle about knowledge or rationality’ because (4) and (5) are incoherent only if we add the premise that (4) and (5) themselves can be respectively known and rationally believed—which is a premise that one seems committed to if one believes (4) or (5). Below, I return to the issue of which epistemic principle makes scientism self-referentially incoherent and why we should think the adherent of scientism is committed to that epistemic principle.

It seems the argument from self-referential incoherence against scientism would say that, since on scientism no proposition can be known unless it is based on natural scientific research, scientism itself cannot be known, because it is *not* based on scientific research. We find rough and sketchy versions of this argument in the literature. According to Jeroen de Ridder, for instance:

scientism suffers from self-referential problems. Not being a scientific claim itself, it would seem scientism cannot be known by anyone. This raises the question of why anyone should assert or believe it in the first place.\(^ {17}\)

\(^{16}\) In this paper, I only mention cases of pragmational, performative, and epistemic self-referential incoherence. For a further kind of self-referential incoherence, see Peels 2015b.

\(^{17}\) De Ridder 2014.
And according to Mikael Stenmark in his book on scientism:

The most troublesome difficulty with T1 [a variety of epistemological scientism; RP], however, is that it appears to be self-refuting, that is, T1 seems to tell us not to accept T1. This is a very serious problem for the defenders of Scientism, because if T1 is self-refuting then it is not even possible for T1 to be true.18

Earlier on, he is even slightly more detailed about this objection:

(…) how do you set up a scientific experiment to demonstrate that science or a particular scientific method gives an exhaustive account of reality? I cannot see how this could be done in a non-question begging way. What we want to know is whether science sets the limits for reality. The problem is that since we can only obtain knowledge about reality by means of scientific methods (that is T1), we must use those methods whose scope is in question to determine the scope of these very same methods. If we used non-scientific methods we could never come to know the answer to our question, because there is according to scientistic faith no knowledge outside science. We are therefore forced to admit either that we cannot avoid arguing in a circle or that the acceptance of T1 is a matter of superstition or blind faith.19

Now, before we try to spell out the argument slightly more formally, let me make two preliminary remarks.

First, the argument can be cast in terms of knowledge, rationality, justification, warrant, understanding, or other epistemic desiderata, since scientism itself can be spelled out in each of these terms. Below, I largely confine myself to the argument cashed out in terms of knowledge. The arguments can easily be revised in order draw conclusions about, say, rational belief or understanding.

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18 Stenmark 2001, 32.
19 Stenmark 2001, 22-23.
Second, there are different ways to structure the argument. I will present two varieties of the argument. The first one is a reductio, whereas the second is a Moorean Paradox.

**Argument #1**

(6) We can know a proposition $p$ only if our belief that $p$ is based on scientific research. [Ass.; Scientism]

(7) If (6) is true, we can know that (6) is true. [Prem.]

(8) We can, on the basis of scientific research, know the proposition $q$ that we can know that $p$ only if our belief that $p$ is based on scientific research. [from (6) and (7)]

(9) It is impossible to know on the basis of scientific research the proposition $q$ that we can know some proposition $p$ only if our belief that $p$ is based on scientific research. [Prem.]

(10) It is possible and it is impossible to know on the basis of scientific research the proposition $q$ that we can know some proposition $p$ only if our belief that $p$ is based on scientific research. [Conjunction of (8) and (9); RAA]

Let me say a bit in defence of premises (7) and (9). As to (7), the adherent of scientism seems committed to this premise, because she claims (asserts) that scientism is true. Even though the idea that knowledge is the norm of assertion is widely advocated by philosophers these days, one need not accept such a principle in order to accept (7). This is because all (7) says is that if scientism is true, we can know that it is true, not that we actually do know that it is true. And it seems undeniable that one should not assert something if there is good reason to think that one cannot even know it.

Premise (9) says that we cannot know scientism on the basis of scientific research. The motivation for (9) is rather simple: scientism is not some empirical truth that we can find out by

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20 Of course, this is not the only way to make scientism explicitly self-referentially incoherent. Another way would be to replace (7) with the premise that every truth can be known. I will not pursue that route here, though. For a defense of that premise, see Rutten 2015.

21 See, for instance, Benton 2011; Smithies 2012; Turri 2011.
way of setting up an experiment or doing statistical research. Nor does it seem to be an *a priori* truth that can be deduced by mathematical methods from elementary truths that we know *a priori*. Rather, it seems to be an *epistemic* principle that needs to be backed up by philosophical argumentation. And whatever philosophy is, it is widely considered *not* to be one of the natural sciences.

As I said, the argument need not be phrased as a *reductio*; it can also be presented as a Moorean Paradox. Here is one version:

*Argument #2*

(6) We can know that $p$ only if our belief that $p$ is based on scientific research. [Ass.; Scientism]

(9) It is impossible to know on the basis of scientific research the proposition $q$ that we can know some proposition $p$ only if our belief that $p$ is based on scientific research. [Prem.]

(11) We can know that $p$ only if our belief that $p$ is based on scientific research, and we cannot on the basis of scientific research know that we can know that $p$ only if our belief that $p$ is based on scientific research. [From (6) & (9)]

This is a Moorean Paradox, because it does *not* conclude: $p$ and not-$p$, but: $p$ and we cannot know that $p$. Since this argument does not use any premises that are *not* used in argument #1, they need no further defence here.

If these arguments are convincing or, in fact, if one of these two arguments is convincing, then this leaves the adherent of scientism with four options:

A. Premise (9) is false, because we *do* or at least *can* know scientism on the basis of scientific research.

B. We *do* know scientism, even though *not* on the basis of scientific research. Scientism itself is an exception to scientism. This would amount to a slight, albeit important revision of scientism, as formulated in Ass. (6).
C. We do not know scientism, but we should nevertheless accept it for pragmatic reasons. This amounts to rejecting premise (7) of argument #1 and embracing the Moorean Paradox of argument #2.

D. Scientism’s content has been correctly described, but it should not be understood as a thesis, belief, or assertion, but as something else, such as a stance. We should reject premise (6) of each of the three arguments, while maintaining a position that can plausibly be described as ‘scientism’.

Below, in sections 4–7, I argue that each of these options is wanting. I conclude that we ought to reject scientism.

4. First Response: We Can Know Scientism on the Basis of Scientific Inquiry

A first response to the argument from self-referential incoherence is that we do or at least can have scientific evidence for scientism. It is undeniable that science has an impressive track record. We have discovered all sorts of things about the cosmos, about space and time, about animal life, about ourselves. One might think that this provides some kind of inductive argument for scientism. It is not that scientism can be deduced from the results of natural science or that it is the best explanation for a series of phenomena that we encounter, but rather that even the comparatively short history of science with its impressive successes gives us good reason to think that scientism is true, and that even if the evidence is not yet sufficient, that at some point it may very well be if science continues to be as successful as it has been so far or if it becomes even more successful.

At least two comments on this response are in order. First, even if natural science’s track record were impeccable and would continue to be so indefinitely while the body of scientific knowledge continually expands, it would in no way justify scientism. It would then justify at most the claim that if something is the result of natural science, then we have good reason to think that we rationally believe or know that result, not that we rationally believe or know something only if it is based on science—that would be to commit the logical fallacy of affirming the consequent.

What we would need as well, of course, is evidence for the unreliability of non-scientific sources of evidence. Thus, we would need good empirical arguments to think that, say,
metaphysical intuition, introspection, and memory are so unreliable that we cannot rationally embrace their deliverances and that beliefs from these sources do not count as knowledge. We can find such arguments in the literature, such as in the writings of Daniel Dennett and Eric Schwitzgebel, but the arguments these authors adduce in favour of their radical theses are highly controversial. Of course, natural science could in principle at some point come up with convincing arguments for the unreliability of, say, introspection (or, at least, the introspection of certain mental states). Unless such evidence shows up, though, we have no reason to accept (6), that is, scientism, in the first place.

Second, imagine that we had good reason to think that scientific research would always (or often enough) issue in knowledge and that non-scientific sources of belief always (or often enough) deliver irrational belief or at least not knowledge, for instance, because we have good scientific empirical evidence to think that non-scientific sources of belief are unreliable. We can imagine, for instance, that we have good empirical reasons to think that introspection, memory, and logical reasoning are unreliable. That would still leave us with question how we could know scientism itself. Presumably, in order to know scientism, it would have to be a scientific hypothesis that has been tested and confirmed sufficiently frequently.

Now, we should note that if scientism is a scientific hypothesis, the fact that it is self-referential is as such not a problem. The sentence “this proposition is true” seems true, even if it refers to itself. Thus, even though scientism may implicitly refer to itself, that as such does not make it self-referentially incoherent.

The problem is rather that if scientism is a scientific hypothesis that has been empirically confirmed by testing cases of beliefs based on science and beliefs from non-scientific sources, we still need an answer to the question of how we know in each particular case that it is an instance of knowledge or that it is not. It seems that one’s verdict in each case will depend on one’s theory of knowledge, such as whether or not it requires being true, whether it entails being reliably produced, whether or not it requires evidence that is accessible to the subject, and so forth. And, clearly, whether or not one takes each of these to be criteria of knowledge is not a

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22 See Dennett 1991; 2003; and Schwitzgebel 2011.
23 See, for instance, my criticisms in “Empirical Arguments against the Reliability of Introspection”, unpublished manuscript.
matter that science can establish. What is relevant here is linguistic or epistemic intuitions – philosophical beliefs and philosophical arguments – not scientific evidence. Thus, the inductive argument for the scientific hypothesis of scientism will get started only if from the very beginning we assume that certain beliefs from non-scientific sources that we hold are instances of knowledge.

5. Second Response: Making an Exception for Scientism

A second line of response is that we can rationally believe or know some proposition \( p \) only if \( p \) is the result of science or if \( p \) is the thesis of scientism itself. Scientism would, thus, be an exception among the propositions that can be rationally believed or known: it can be rationally believed or known, even though it is not the result of scientific research.

The main problem with this kind of reply is that it seems unduly ad hoc: what is so special about scientism that we can rationally believe or know a proposition only if it is the result of scientific research unless it is the thesis of scientism itself? Scientism is a claim about knowledge or rational belief and if it is allowed in, why would other epistemological claims or, for that matter, metaphysical or ethical claims not count as knowledge or rational belief? The restriction to all views except scientism itself seems arbitrary.

One might reply that it is not unreasonable to make an exception for scientism itself, since one has to make an exception for any epistemological theory in order to avoid a regress. Some beliefs will simply have to be accepted as rational and as instances of knowledge, even if they are not based on arguments. This response, however, is problematic for at least three reasons.

First, it is controversial that there are properly basic beliefs, that is, that some beliefs are rational and count as knowledge even if they are not in any way supported by one’s other beliefs. Adherents of coherentism and foundherentism deny this.\(^{24}\) I do not intend to suggest that some kind of foundationalism is false—in fact, I am inclined to embrace some version of it myself. Rather, I would like to point out that one should not simply assume the truth of foundationalism without some kind of argument.

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\(^{24}\) See, for instance, Haack 2009.
Second, even if it were true that a theory about, say, knowledge, has to make an exception for itself, we have not been given a reason to embrace scientism rather than a rival theory of knowledge. One could equally well embrace a theory that says, for instance, that a belief is rational if one has no good reason to think that it is false or unreliably produced and that it amounts to knowledge if that is the case and if it is reliably produced.

Third and most importantly, it is simply false that a theory about, say, knowledge has to make an exception for itself. Take a foundationalist theory that says that certain of our beliefs are properly basic, for example when they are reliably produced by a properly functioning mechanism that aims at truth, and that some of our beliefs based on linguistic, epistemic, and metaphysical intuitions meet this criterion. One might then also claim that one knows this particular theory about knowledge on the basis of one’s properly basic beliefs about particular cases of belief. That theory would meet its own criteria and would, thus, not have to make an exception for itself.

One may reply that certain kinds of epistemological theses have to make an exception for themselves. A view along these lines has been defended by, among others, Adam Elga, in response to the equal weight view – also called the conciliatory view – in the debate about disagreement. On this view, what one should do in cases of peer disagreement is suspend judgement or at least lower one’s confidence in the proposition in question, whereas the steadfast view says that it is perfectly legitimate in cases of peer disagreement to maintain one’s view and even stick to one’s degree of confidence in the proposition in question. An natural objection to the equal weight view is that adherents of the equal weight view should abandon that view or, at least, lower their confidence in it, since that is what the equal weight view itself implies given that some of their peers believe that the equal weight view is false. Here is what Elga says in reply:

It looks arbitrary for a view to recommend that one be conciliatory about most matters, but not about disagreement itself. But in fact no arbitrariness is required, for (...) it is in the nature of giving consistent advice that one’s advice be dogmatic with respect to its own correctness. And views on disagreement give advice on how to respond to evidence.

\[^{25}\text{We find a formulation of this problem for the equal weight view (or the conciliatory view) on also in Kelly 2005 and Weatherson 2013.}\]
So, in order to be consistent, views on disagreement must be dogmatic with respect to their own correctness.\textsuperscript{26}

By way of example, he mentions \textit{Consumer Reports}, a magazine that consistently rates itself as the No. 1 consumer-ratings magazine. Any consumer-rating magazine that would \textit{not} rate itself as the No. 1 consumer-rating magazine would be inconsistent. This reply is important, for, like the equal weight view, epistemological scientism gives epistemic advice.

The analogy that Elga gives, however, fails for at least two reasons. First, a consumer-ratings magazine need \textit{not} be dogmatic with respect to its own correctness. If consumer ratings show that it is \textit{not} the best consumer-ratings magazine, the magazine could be simply be stopped. Or it could be continued, since its results might still be entirely correct – consumer-ratings simply say what consumers prefer – and even if they are \textit{not} entirely correct, they might still give good advice in many cases. Second, and more importantly, the consumer-rating magazine does \textit{not} formulate a general rule while dictating that it is itself an exception to that rule, while both the equal weight view and scientism, on the response under consideration, do so. Maybe advice needs to be in some sense of the word dogmatic with regard to its own correctness. It does not follow that views that give advice but make an exception for themselves are \textit{not} unduly ad hoc.

6. Third Response: Scientism is Pragmatically Justified

A third response grants that we cannot \textit{rationally believe or know} scientism, but that we should nonetheless adopt it, because it is \textit{pragmatically} justified: working with it gives such good results that we should embrace it, even if we cannot rationally believe or know it. This means that one would either irrationally \textit{believe} scientism or – for all we know rationally – \textit{accept} scientism, that is, work with scientism, adopt it as a policy without believing it.\textsuperscript{27}

One may object to this response to my argument from self-referential incoherence that if adopting scientism leads to more good results, that presumably means that it leads to more \textit{true beliefs} (based on scientific research) and that that would render scientism \textit{epistemically justified}

\textsuperscript{26} Elga 2010, 184-185.
\textsuperscript{27} For the distinction between belief and acceptance, see Cohen 1992.
and, hence, presumably, rational or even a piece of knowledge, so that one is after all committed to the claim that one knows scientism.

As Wayne Riggs rightly points out,\textsuperscript{28} it is widely acknowledged that the hallmark of the epistemic is the Jamesian goal, named after William James,\textsuperscript{29} of believing the truth and avoiding (not believing) falsehood.\textsuperscript{30} However, it is also widely acknowledged that not just any way of reaching this goal is epistemically rational. Imagine, for instance, that one knows that believing the proposition $p$, for which one has no evidence whatsoever, will result in all sorts of true beliefs and no false beliefs (except, perhaps, the belief that $p$ itself). One can know, for instance, that a friendly neurosurgeon will guarantee that one acquires lots of true beliefs if one comes to believe that $p$. Clearly, it does not follow that believing that $p$ is epistemically justified, even though it will result in all sorts of true beliefs.\textsuperscript{31} I conclude that this first objection to the idea that scientism can be pragmatically rather than epistemically justified fails.

It seems to me, though, that the idea that scientism is pragmatically justified suffers from at least two other problems that are fatal. First, imagine that we did not accept scientism, assume it, or work with it, but that we would assume, accept, or work with a somewhat different thesis, namely the rather uncontroversial thesis that natural science leads to all sorts of rational beliefs and knowledge. It seems that an acceptance or assumption along those lines would have the exact same good results as accepting or assuming scientism. We could have the same observations, experiments, inductions, abductions, deductions, theories, models, and so forth if we rejected scientism. Thus, even though natural science has indeed been impressively successful, that provides us with no good pragmatic reasons to embrace scientism rather than an epistemological thesis that ascribes a positive epistemic status both to the deliverances of natural science and to beliefs from non-scientific sources.

Second, if we were to embrace scientism merely for pragmatic reasons, we would realize that we have done so and our having done so would, therefore, fail to make a difference to which beliefs we hold—except for such trivial beliefs as the belief that we have adopted scientism for

\textsuperscript{28} Riggs 2003, 342-345.
\textsuperscript{29} See James 1979, 24.
\textsuperscript{30} See, for instance, BonJour 1980, 54; Foley 2005, 317; Nottelmann 2007, 55.
\textsuperscript{31} For similar examples, see reference.
pragmatic reasons. If we only assume or act as if certain beliefs from non-scientific sources are not rational or do not count as knowledge, we will automatically continue to hold them. If we actually believed scientism to be true – which we should, if we had good reason to think that scientism is true – that would probably lead us to abandon some of our beliefs, since we would believe that they do not amount to knowledge or are not rational. But that would lead us back to the problems discussed in the two previous sections.

7. Fourth Response: Scientism Is a Stance
Finally, one could claim that our whole approach to scientism so far has been mistaken. For, we have treated scientism as a claim, thesis, or belief. But why treat it as such? Bas van Fraassen has argued that empiricism is best understood as a stance, Richard Hare that world views are best interpreted as blik, and Mike Rea that naturalism is best thought of as a research program. According to these authors, these phenomena do not amount to a thesis or claim, for doing so inevitably leads to trouble—the argument from self-referential incoherence being one of the major worries.

We can only assess this response if we first get a firmer grip on the core notions. Bas van Fraassen introduced the idea of a stance in his characterization of empiricism. He does not give any kind of definition of what stances are, but he describes them as follows. A stance is a combination of attitudes, such as – in the case of empiricism – disvaluing explanation by postulate, calling us back to experience, rebellion against theory, certain ideals of epistemic rationality, and admiration for science. Such attitudes are “to some extent epistemic and to some extent evaluative, and they may well involve or require certain beliefs for their own coherence”, even though the stance as such is not a belief. A stance consists of such things as an ‘attitude’, a ‘commitment’, an ‘approach’, ‘a cluster of such’, ‘values’, and ‘goals’. He also says that a stance is something that can be expressed.

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32 As I have argued elsewhere, this is a general problem with all belief-policies that are not themselves beliefs. See Peels 2013.

33 Van Fraassen 2002, 47-48. In fact, scientism is rather closely related to empiricism and, perhaps, materialism. According to Van Fraassen, “[f]or the materialist, science is what teaches us what to believe. For the empiricist, science is more nearly what teaches us how to give up our
What would scientism be if it were a particular stance? More precisely, what would scientism amount to without forcing its adherent to embrace the view that only natural science delivers knowledge without loosing the content of scientism as I defined it above? Clearly, spelling this out is not an easy task. Surely, it would include a respect for science, valuing scientific knowledge, and disvaluing beliefs from non-scientific sources. The problem is that such an attitude seems entirely unwarranted and – as I noted above, in section 6 – unnecessary, unless backed up by some kind of argument. However, as soon as one gives an argument in favour of scientism, it is no longer a stance, but a substantial thesis and it will face the argument from self-referential incoherence that I spelled out in section 3.

Second, one could suggest that scientism should be interpreted as a blik. The concept of a blik has been developed by Richard Hare, who, in response to Antony Flew’s criticism of religion, considered it as an alternative way of understanding theism or religion in general. Unfortunately, Hare fails to give a precise definition of what a blik is. He does give a few examples, though. Hare has a blik of the steering wheel of his car, and of steel and its properties in general, which makes him trust the steering of his car. Some people have the blik that everything happens by chance. And many people have the blik that people like Hitler come generally come to a bad end. He appeals to Hume in claiming that people have different bliks about the world as a whole and that the differences between these bliks cannot be settled by observing what happens in the world. Bliks are different from other beliefs in that they are compatible with any observation. A blik is not an assertion or system of assertions, but one can nonetheless have the right or the wrong blik. Unfortunately, Hare does not say anything about what the criteria are for having the right blik.

It is hard to get a firm grip on what a blik is merely on the basis of these examples—and that is all we have. I believe – dormantly or tacitly – that the steering wheel functions in a particular way, one might have the intuition that everything happens by chance, and one may trust that bad people come to a bad end. Now, here is the problem. If, on the one hand, bliks are beliefs. All our factual beliefs are to be given over as hostages to fortune, to the fortunes of future empirical evidence, and given up when they fail, without succumbing to despair, cynicism, or debilitating relativism.” (Van Fraassen 2002, 63) Clearly, this is rather close to the content of scientism, as I have defined it above.
beliefs, then they suffer from the problem of self-referential incoherence. If, on the other hand, they are *intuitions* or propositional attitudes different from belief, such as *trust*, they are either somehow beyond rationality, or within the realm of rationality and, therefore, rational or irrational. If they are beyond rationality, there is no particular reason to embrace scientism. If they are *within* the realm of rationality – which is suggested by Hare’s claim that one can have the right or wrong *blik* – it is either irrational or rational and, thus, up to debate. The argument from self-referential incoherence will then be a serious objection that will have to be dealt with.

A third option would be to treat scientism as what Imre Lakatos and Mike Rea in his wake have called a research program. According to Lakatos, a research program has a ‘hard core’ of theses that are treated as immune to revision. The negative heuristics of the research program tells us which paths of research should be avoided in order to maintain this hard core. A research program also has a ‘protective belt’ of auxiliary theses that may be revised as needed to accommodate observations that seem to threaten the hard core. The positive heuristics of the research program tell us which paths of research to pursue; they all concern these auxiliary hypotheses. Finally, a research program has a set of problem-solving strategies. Examples of research programs that Lakatos mentions are Descartes’ mechanistic theory of the universe, Newton’s gravitational theory, and Prout’s theory that the atomic weight of all pure chemical elements are whole numbers.

According to Rea, research programs are *not* theses and the decision to adopt one research program rather than the other – at least, when it comes to naturalism in comparison with intuitionism and supernaturalism – must be made on pragmatic rather than evidential grounds. For, if naturalism (or scientism, for that matter) is a thesis that can be overturned by science, then naturalism stands at the mercy of science, because science might provide evidence for, say, supernaturalism. And if it is a thesis that cannot be overturned by science, then it is contradicted by its own dictum that we should accept the deliverances of natural science. Thus, naturalism

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35 Clearly, what I have referred to as ‘scientism’ is close to what Rea means by ‘naturalism’. He defines the latter as “a research program in which one treats the methods of science and those methods alone as basic source of evidence”. (Rea 2002, 50)
(and, for that matter, scientism) is not a thesis, but a research program, and one cannot adopt it on a rational basis.\textsuperscript{36}

If scientism is a research program, then what does it look like? Well, presumably it will be a \textit{scientific} research program that relies on natural scientific methods and that does \textit{not} rely on beliefs from non-scientific sources. Here, I will assume that such a research program is indeed possible.\textsuperscript{37} If it is possible, then one could work with such a program. The problem is: what would \textit{motivate} one to adopt this particular program? If it is arbitrarily adopted, then a research program that also admits non-scientific sources of belief seems preferable, since virtually all human beings hold all sorts of beliefs from non-scientific belief sources that seem to contribute to their wellbeing and proper functioning. If it is adopted because scientific sources of belief are thought to be somehow more reliable than non-scientific sources of belief, then we have a thesis that is up to debate and we face the good old argument from self-referential incoherence again.

In this section, I have identified problems for interpreting scientism as a stance, \textit{blik}, or research program. However, it seems to me there is going to be a problem for \textit{any} view on which scientism is \textit{not} a thesis or claim, but some kind of non-doxastic attitude. If, on the one hand, the idea is that that attitude is \textit{justified}, then it is either epistemically justified or pragmatically (where the disjunction is inclusive). We saw, in respectively sections 4 and 5, that both of these options are problematic. If, on the other hand, the idea is that that attitude is \textit{not} justified, either because it is \textit{unjustified} or because it is somehow \textit{beyond justification}, then whether or not one adopts scientism has become completely arbitrary. This means that someone who is not an adherent of scientism has no reason to embrace scientism. It follows that scientism has lost all of its teeth.

\textbf{8. Conclusion}

In this paper I have done a bit of philosophical judo: I have employed scientism’s own weight against it. I have argued that scientism – the idea that only science delivers rational belief or knowledge – is self-referentially incoherent, where arguments to that effect can be phrased as

\textsuperscript{36} See Rea 2002, 6-7.

\textsuperscript{37} Elsewhere, I have argued that it is not, since science inevitably relies on non-scientific sources of belief. See Peels 2015c.
reductios or Moorean paradoxes. I also argued that the only four options that seem available to
the adherent of scientism all fail: that on which we do know scientism to be true on a scientific
basis, that on which scientism is an exception to scientism, that on which scientism is
pragmatically justified, and that on which scientism is not a thesis at all, but a stance, blik, or
research program.

If what I have argued is correct, scientism will be tenable only on a substantially weaker
variety which counts as rational and instances of knowledge certain epistemic beliefs – beliefs
about rationality and about knowledge – and certain linguistic and epistemic intuitions that are
needed to back up one’s scientism by argument. This is unavoidable, but deeply problematic for
scientism. First, it would have to count as rational and instances of knowledge beliefs that are not
even remotely based on science. Second, if linguistic and epistemic beliefs are allowed in, then
exactly why should other beliefs, such as metaphysical beliefs, be excluded, that is, discarded as
being irrational and not counting as knowledge? Scientism, then, should not only be cast as a
significantly weaker claim than it usually is, but also be accompanied by a criterion and a
defence of that criterion – different from the thesis of scientism itself – to exclude sources of
belief that are in many ways similar to sources of belief that are needed to get scientism started in
the first place if it is to avoid the argument from self-referential incoherence.38

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