

SCIENTISM AND THE ARGUMENT FROM SELF-REFERENTIAL INCOHERENCE

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1. Introduction

An influential idea in science, philosophy, and popular science writing these days is that science and the natural sciences 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’. The word has often been used pejoratively, but, nowadays, the word is frequently 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 – and, I will argue *cannot* be – sufficiently supported merely by natural science and, therefore, on scientism itself scientism cannot be rationally believed or known. I also argue that this counts against scientism. It might seem obvious that it does, but this is an important additional argumentative step. 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

¹ See Rosenberg 2011; Ross, Ladyman, and Spurrett 2007.

view that, even though scientism's self-referential incoherence does not imply that it is false, it provides us with good reason to reject it.²

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, William Alston and Alvin Plantinga have argued that the verification criterion of logical positivism is self-referentially incoherent,⁴ Alvin Plantinga has defended the claim that classical foundationalism suffers from self-referential incoherence, 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.⁵ 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

² What I will argue implies that scientism is self-refuting. To say that it is self-referentially incoherent is to be more specific, though, for it draws attention to the fact that scientism is self-refuting partly in virtue of the fact that it (implicitly or explicitly) refers to itself.

³ See Plato 1977, 57-58 (171a-c).

⁴ See Plantinga 1967, 156-168; Alston 2003.

⁵ See, respectively, Plantinga 1967, 156-168, and Alston 2003; Plantinga 1983, 60-62; Kordig 1982; Swinburne 1980; Baker 1988. For a critical discussion of Swinburne's and Baker's arguments, see Cling 1988.

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 statements to the effect that academic disciplines such as psychology and economics should adopt the methods of natural science or even be reduced to natural science in order to deliver rational belief or knowledge.⁶

I focus on scientism as an *epistemological* rather than an *ontological* claim, that is, as a claim to the effect that only science delivers rational belief or knowledge rather than as the claim that only that exists what science tells us exists or only that which can in principle be investigated by science.⁷ 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

⁶ As regards psychology, see, for instance, Dennett 1993; 2003. The debate about the methods of economy has been raging for decades; for several references, see Hayek 1979.

⁷ For more on the relation between the two, see author’s paper.

means of access to reality”.⁸ 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, for instance, (a) delivers, produces, leads to, or issues in – I use these terms equivalently – *rational 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, on virtually all philosophical views,⁹ knowledge entails rational belief, and if non-scientific belief sources cannot produce knowledge, they cannot reliably issue in knowledge. I, therefore, confine myself mostly to those versions of scientism that say that only natural science delivers rational belief, for if those versions are untenable, then so are the other versions of scientism that I mentioned.

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

⁸ Barbour 1990, 4; Trigg 1993, 90. See also De Ridder 2014; Pigliucci 2013, 144.

⁹ There are a few exceptions; e.g. Lasonen-Aarnio 2010.

they discard metaphysical intuition as unreliable in favour of scientific knowledge.¹⁰ Another weak version is embraced by Daniel Dennett and Eric Schwitzgebel, who claim that introspection is untrustworthy.¹¹ 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 scientific just means treating science as our exclusive guide to reality, to nature—both our own nature and everything else's.¹²

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

3. The Argument from Self-Referential Incoherence

¹⁰ See Neurath 1987, 7-11; Ross et al. 2007.

¹¹ See Dennett 1991; 2003; Schwitzgebel 2011.

¹² Rosenberg 2011, 6-8. For a similar claim, see Atkins 1995.

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 several plausible principles – is incoherent at least partly in virtue of the fact that it refers to itself.¹³

Now, there are different kinds of self-referential incoherence. Steven Bartlett distinguishes two of them.¹⁴ 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 truths.
- (2) There are no exceptions to the rule that all rules have exceptions.¹⁵

¹³ It seems to me that this squares well with how ‘self-referential incoherence’ is usually defined. Joseph Boyle, for instance, stipulates that a self-referentially incoherent thesis is 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) George Mavrodes, in several places in his article (Mavrodes 1985), equates self-referential incoherence with failing to satisfy the conditions laid out by the analysis in question, but this leaves out a crucial part of what it is for a thesis to be self-referentially incoherent, namely that it refers to itself. A plausible analysis of falsehood, for instance, does not satisfy its own conditions either, but that does not make it self-referentially incoherent.

¹⁴ See Bartlett 1988, 227-228.

¹⁵ For further interesting examples of pragmatical self-referential incoherence, see, for instance, John Buridan’s sophisms 7-12 (Hughes 1982, 61-93).

(1) is self-referentially incoherent, because it (implicitly) claims as a truth that there are no truths, and (2) is self-referentially incoherent because it presents a general rule that is claimed to have no exceptions, 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.¹⁶

Kordig claims that this thesis is self-referentially incoherent, because (3) implies that (3) itself is a statement whose meaning or truth varies from theory to theory. But (3), if true and meaningful, implies that there is no such theory. Hence, (3) is either false or meaningless.¹⁷

We can distinguish further varieties of self-referential incoherence in addition to pragmatical and performative self-referential incoherence. Among them is what I call *epistemic* self-referential incoherence. The following propositions have this feature:

¹⁶ See Whorf 1957.

¹⁷ See Kordig 1971, 78-82. One may wonder exactly how *performative* self-referential incoherence relates to *pragmatical* self-referential incoherence—one may think, for instance, that the latter is a species of the former. Here, I will not delve into this and focus on what I call cases of *epistemic* self-referential incoherence.

- (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.¹⁸ 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 rationally believed unless it is based on natural scientific research, scientism itself cannot be rationally believed, 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:

¹⁸ In this paper, I only mention cases of pragmatical, performative, and epistemic self-referential incoherence. For a further kind of self-referential incoherence, see author, “Scientism and the Argument from Self-Referential Incoherence”, *unpublished manuscript*.

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.¹⁹

And according to Mikael Stenmark in his book on scientism:

The most troublesome difficulty with T1 [a variety of epistemological scientism; author], 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.²⁰

Earlier on, he is 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 scientific faith no knowledge outside

¹⁹ De Ridder 2014.

²⁰ Stenmark 2001, 32.

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.²¹

Now, before we try to spell out the argument 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 *rational belief*. The arguments can easily be revised in order to draw conclusions about, say, knowledge or understanding. As I said above, I take scientism to be the thesis that we can rationally believe a proposition p only if our belief that p is based merely on scientific research.

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) Scientism is true. [Ass.]
- (7) If scientism is true, we can rationally believe that it is true. [Prem.]
- (8) We can, merely on the basis of scientific research, rationally believe that scientism is true. [from (6), (7)]
- (9) It is impossible to rationally believe merely on the basis of scientific research that scientism is true. [Prem.]
- (10) It is possible *and* it is impossible to rationally believe merely on the basis of scientific research that scientism is true. [Conjunction of (8), (9); RAA]

²¹ Stenmark 2001, 22-23.

(11) $\neg(6)$

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. Here is one reason to think that a person who asserts scientism is committed to (7). An idea that is widely advocated among philosophers these days is that knowledge is the norm of assertion: one should assert that p only if one knows that p .²² And knowledge entails rational belief.

Therefore, one should assert that p only if one rationally believes that p . Even if one does not accept the knowledge norm of assertion, though, there is good reason to embrace (7). This is because all (7) says is that if scientism is true, we *can* rationally believe that it is true, not that we actually *do* rationally believe 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 rationally believe it.

Premise (9) says that we cannot rationally believe 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 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 or logical 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. According to Peter Atkins, there appear to be no boundaries to the competence of science.²³ But if the above argument is sound, there is at least one boundary to the competence of science: science is incompetent to motivate scientism, that is, to provide sufficient scientific support for making belief in scientism rational.

²² See, for instance, Benton 2011; Smithies 2012; Turri 2011.

²³ See Atkins 1995, 97.

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) Scientism is true. [Ass.]
- (9) It is impossible to rationally believe merely on the basis of scientific research that scientism is true. [Prem.]
- (12) Scientism is true and it is impossible to rationally believe that scientism is true.
[Conjunction of (6), (9)]

(12) follows from (6) and (9), because scientism says that we can rationally believe that p only if our belief that p is based on scientific research. Thus, the only kind of rational belief, including rational belief that scientism is true, is itself based on scientific research. This is a Moorean Paradox, because it does *not* conclude: p and not- p , but: p and we cannot rationally believe that p . Since this argument does not use any premises that are *not* used in argument #1, it does not need 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* rationally believe scientism on the basis of scientific research.
- B. We *can* rationally believe 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.

- C. We do *not* rationally believe 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 two arguments, because it takes scientism to be a thesis, while we should maintain 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: Believing 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 that result, *not* that we rationally believe 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 belief. Note that evidence for the thesis that non-scientific sources of belief are *less* reliable than scientific sources of belief will not do. For, even if they are less reliable, it does not follow that their deliverances do not amount to rational beliefs. 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 rational beliefs. We can find such arguments in the literature, such as in the writings of Daniel Dennett and Eric Schwitzgebel,²⁴ but the arguments these authors adduce in favour of their radical theses are highly controversial.²⁵ Of course, natural science *could* in principle at some point come up with convincing arguments for the unreliability of, say, introspection or, at least, for the unreliability of the introspection of certain *kinds of* mental states. In order for scientism to be tenable, though, we would need good reason to discard *all* non-scientific sources of belief and it is not at all clear that we could ever have good reason to do so.

Second, imagine that we had good reason to think that scientific research would always (or often enough) issue in rational belief and that non-scientific sources of belief always (or often enough) deliver irrational belief or at least not rational belief, for instance,

²⁴ See Dennett 1991; 2003; and Schwitzgebel 2011.

²⁵ See, for instance, many of the essays in Jack and Roepstorff 2003; 2004. See also my criticisms in author's paper.

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 *rationally believe* scientism itself. Presumably, in order to *rationally believe* 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 sentence contains English words” also refers to itself, but it seems nonetheless true. Thus, even though scientism may implicitly refer to itself, that as such as 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 rational belief or that it is *not*. It seems that one’s verdict in each case will depend on one’s theory of rationality, such as whether or not it requires evidence that is accessible to the subject, whether a belief can be rational merely in virtue of being undefeated, and so forth. And, clearly, whether or not one takes each of these to be criteria of rational belief is *not* a matter that science can establish. What is relevant here is *epistemic* intuitions (or epistemic beliefs) and epistemological arguments on the basis of those intuitions. 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 rational belief.

One may reply that there is a large movement in epistemology that pleads for a *naturalization* of epistemological questions. And one might suggest that this implies that we can do epistemology without any epistemic intuitions or philosophical arguments. My reply

is twofold. First, most adherents of naturalized epistemology, such as Robert Almeder and Richard Fumerton, argue that epistemology needs to be *empirically informed* in order to answer epistemological questions, *not* that epistemic intuitions and epistemological arguments are superfluous.²⁶ Second, those who embrace the more extreme versions of naturalized epistemology, such as W.V.O. Quine,²⁷ typically claim that natural science should take over answering questions about the causal connections between our sensory evidence and our beliefs about the world and that questions about what it is for something to be epistemically rational or to count as knowledge should be abandoned, *not* that natural science can give us answers to questions about epistemic rationality.²⁸ But if it cannot give such answers, then we have no reason to think that natural science can tell us when it is rational to adopt a belief and when it is not.

This means that the argument from self-referential incoherence against scientism stands unscathed: on scientism only those propositions can be rationally believed that are supported by natural science, but scientism itself cannot be sufficiently supported by natural science and, therefore, cannot be rationally believed. The thesis of scientism, therefore, implies that it cannot be rationally believed.

5. Second Response: Making an Exception for Scientism

A second line of response is that we can rationally believe 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: it can be rationally believed, even though it is *not* the result of scientific research.

²⁶ See Almeder 1998; Fumerton 1994.

²⁷ See Quine 1969, 69-90.

²⁸ Kim 1988, 390, has made this point in much more detail.

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 a proposition only if it is the result of scientific research unless it is the thesis of scientism itself? Scientism is a claim about rational belief and if it is allowed in, why would other epistemological claims or, for that matter, metaphysical or ethical claims not count as 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, even if they are not based on arguments. For three reasons, however, this response is unconvincing as it stands.

First, it is controversial that there are properly basic beliefs, that is, that some beliefs are rational even if they are not in any way supported by one's other beliefs. Adherents of *coherentism* and *foundherentism* (rather than foundationalism) deny this.²⁹ I do not intend to suggest that some kind of foundationalism, which entails that there are properly basic beliefs, is false. Rather, I would like to point out that one should not simply assume the truth of foundationalism or some other kind of epistemological theory that implies that there are properly basic beliefs without some kind of argument.

Second, even if it were true that a theory about, say, rationality, has to make an exception for itself, we have not been given a reason to embrace scientism rather than a rival theory of rationality. 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* it is reliably produced.

Third and most importantly, it is simply false that a theory about, say, rational belief or knowledge has to make an exception for itself. Take a foundationalist theory that says that

²⁹ See, for instance, Haack 2009.

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 the possibility of rational peer 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 to stick to one's degree of confidence in the proposition in question.

A natural objection to the equal weight view is that its adherents 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.³⁰ 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

³⁰ We find a formulation of this problem for the equal weight view in Kelly 2005; Weatherson 2013.

respond to evidence. So, in order to be consistent, views on disagreement must be dogmatic with respect to their own correctness.³¹

By way of example, he asks us to imagine that a consumer-ratings magazine, called *Consumer Reports*, consistently rates itself as the No. 1 consumer-ratings magazine. According to Elga, any consumer-rating magazine that would *not* rate itself as the No. 1 consumer-rating magazine would be inconsistent, for if it is *not* No. 1, the reader has insufficient reason to trust the consumer-ratings found in the magazine. Consumer-ratings magazines, therefore, have to be dogmatic about their own correctness. This reply is important, for, like the equal weight view, epistemological scientism gives epistemic advice, and if one epistemological theory that gives epistemic advice can properly be dogmatic about its own correctness, then why could another one not be dogmatic?

The analogy that Elga gives, however, fails for at least two reasons. First, a consumer-ratings magazine need *not* be dogmatic with respect to its own correctness. If consumer ratings show that it is *not* the best consumer-ratings magazine, the magazine could be simply stopped. Or it could be continued. After all, its results might still be entirely correct—consumer-ratings simply say what consumers prefer. And even if they are not *entirely* correct (correct about everything), they might still give good advice in many cases and, therefore, be sufficiently reliable. Second, and more importantly, the consumer-ratings magazine does *not* formulate a general rule while dictating that it is itself an exception to that rule, whereas 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 *not* unduly ad hoc.

³¹ Elga 2010, 184-185.

6. Third Response: Scientism is Pragmatically Justified

A third response grants that we cannot *rationally believe* scientism, but claims that we should nonetheless adopt it, because it is *pragmatically* justified: working with it – that is, believing it and acting on that belief – gives such good results that we should embrace it, even if we cannot rationally believe it. This means that one would either irrationally *believe* scientism or – for all we know, rationally – *accept* scientism, that is, work with scientism, adopt it as a policy without believing it, merely assume it for the sake of argument.³²

Before I move on to criticize this response to the argument from self-referential incoherence, let us consider an objection to this response that I do *not* find convincing. One may object that if adopting scientism leads to more good results, that presumably means that it leads to more *true beliefs* (based on scientific research) and that that would render scientism *epistemically justified* and, hence, presumably, epistemically rational, so that one *is* after all committed to the claim that one *rationally believes* scientism. This would, of course, lead us back to the problems identified in the two previous sections.

Now, let me explain why I do *not* find this objection to the third response to the argument from self-referential incoherence convincing. As Wayne Riggs rightly points out,³³ it is widely acknowledged that the hallmark of the epistemic is the Jamesian goal, named after William James,³⁴ of believing the truth and avoiding (not believing) falsehood.³⁵ 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*,

³² For a detailed account of the distinction between belief and acceptance, see Cohen 1992.

³³ Riggs 2003, 342-345.

³⁴ See James 1979, 24.

³⁵ See, for instance, Foley 2005, 317; Nottelmann 2007, 55.

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 rational, even though it will result in all sorts of true beliefs. I conclude that this objection to the idea that scientism can be pragmatically rather than epistemically rational 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 *did* assume, accept, or work with a somewhat different thesis, namely the rather *uncontroversial* thesis that natural science leads to all sorts of rational beliefs. It seems that an acceptance or assumption along *those* lines would have the exact same good results as accepting or assuming scientism. We can have the same observations, experiments, inductions, abductions, deductions, theories, models, and so forth when we reject 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.

Now, one could, of course, reply that what I have pointed out is compatible with the idea that *both* views – scientism and the view that natural science leads to all sorts of rational beliefs and knowledge – are pragmatically justified. In that case, scientism would still be pragmatically justified. This is, of course, true, but the problem is that if both views are pragmatically justified, then, *ceteris paribus*, we have no reason to prefer scientism over the rival view and scientism would, thereby, lose its bite, since it would then be arbitrary whether one adopts scientism or some rival view.

Another response to this objection is that scientism and the more modest idea that natural science leads to all sorts of rational beliefs might equally *lead to the acquisition of true* beliefs, but that scientism has the additional advantage that it also *avoids* or *helps to abandon* false beliefs because it discards as unreliable non-scientific sources of belief. If that were true, then, one might think, scientism would be *more instrumental* in reaching the twofold Jamesian goal than certain rival views. The problem is that this *might be* the case, but that it might equally be the case that if we adopt scientism, we *abandon all sorts of true beliefs* that we would hold if we rejected scientism. All depends on how convincing the arguments regarding the (un)reliability of specific sources of beliefs, such as the introspection of phenomenal states, are going to be and, as I pointed out above, such arguments are highly controversial.

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 pragmatic reasons. If we only *assume for the sake of argument* or *act as if* certain beliefs from non-scientific sources are not rational, we will automatically continue to hold them, since that as such does not change the evidential basis for those beliefs.³⁶ That would make scientism pointless, for the very idea of scientism is that we should hold only those beliefs that are based on natural scientific inquiry. Of course, if scientism were not only *pragmatically justified*, but also *epistemically justified* because we have good reason to think that it is true, then that *would* probably lead us to abandon many of our beliefs, since we would then come to believe that they are not rational. However, that

³⁶ As I have argued elsewhere, this is a general problem with all belief-policies that are *not* themselves beliefs. See author's paper.

would also lead us back to the problems discussed in the two previous sections, so that we would still face the argument from self-referential incoherence.

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 *bliks*, 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. Might one not adopt the same approach towards scientism?

That scientism is best understood as a stance has been claimed by some adherents of scientism themselves, such as James Ladyman.³⁷ According to Ladyman, the scientific stance is a combination of two stances, namely empiricism and materialism, and it has been instrumental to the progress of science. Ladyman takes the empiricist stance to be a stance that emphasises fallibilism, seeks verifiability and falsifiability, and rejects *a priori* metaphysics, whereas he takes the materialist stance to insist on not appealing to any spooky entities, such as mental substances, in order to explain phenomena.

We can only assess the idea that we should conceive of scientism as a stance 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 rigorous 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

³⁷ See Ladyman 2011.

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* identical to a belief or set of beliefs. A stance consists of such things as an ‘attitude’, a ‘commitment’, an ‘approach’, ‘a cluster of such’, ‘values’, ‘goals’, and some beliefs. He also says that a stance is something that can be expressed.³⁸

What would scientism be if it were a particular epistemological stance in terms of rational belief? More precisely, what would scientism amount to if it does not imply that its adherents embrace the view that only natural science delivers rational belief and simultaneously does not lose 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 devaluing 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 or at least not merely a stance, but also a substantial thesis that is epistemically or pragmatically justified, and it will, therefore, 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

³⁸ Van Fraassen 2002, 47-48. 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 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.

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 says he 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 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 or wrong *blik*.³⁹

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, 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 the realm of 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 for debate. The argument from self-referential incoherence will then be a serious objection that will have to be dealt with.

³⁹ See Hare 1955.

A third option would be to treat scientism as what Imre Lakatos and in his wake Mike Rea 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.⁴⁰ 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 matter⁴¹) 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 (and, for that matter, scientism) is *not* a thesis, but a research program, and one cannot adopt it on a rational basis.⁴²

⁴⁰ See Lakatos 1970, 132-177.

⁴¹ 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)

⁴² See Rea 2002, 6-7.

If scientism is a research program, then what does it look like? Well, presumably it will be a *scientific* research program that relies on natural scientific methods and that does *not* rely on beliefs from non-scientific sources. Here, I will assume that such a research program is indeed possible.⁴³ If it is possible, then one could work with such a program. The problem is that it is not at all clear what would *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 for 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, *blik*, or research program. Let me close by saying that it seems that there is going to be a problem for *any* view on which scientism is *not* a thesis or claim, but some kind of non-doxastic attitude. If, on the one hand, the idea is that that attitude is *justified*, then it is either epistemically or pragmatically justified (where the disjunction is inclusive). We saw in sections 4-6 that both of these options are problematic. If, on the other hand, the idea is that that attitude is *not* justified, either because it is *unjustified* or because it is somehow *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.

8. Conclusion

⁴³ Elsewhere, I have argued that it is not, since science inevitably relies on non-scientific sources of belief. See author's paper.

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 – is self-referentially incoherent, where arguments to that effect can be phrased as *reductios* or Moorean paradoxes. I also argued that the four main options that seem available to the adherent of scientism all fail: that on which we can rationally believe 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 in a substantially weaker variety which says that certain epistemic beliefs – beliefs about rationality and about knowledge – are rational, as well as certain linguistic and epistemic intuitions that are needed to back up one's scientism by argument. This is unavoidable, but deeply problematic for scientism for at least two reasons. First, scientism would have to count as rational certain beliefs that are not even remotely based on science. Surely, this goes against the spirit of scientism. 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? Scientism, then, should not only be cast as a significantly weaker claim than it usually is. It should also be accompanied by a criterion and a defence of that criterion that is different from the thesis of scientism itself. This is needed in order to exclude belief sources that are in many ways similar to those 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.

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