

Opinion Page.

For and Against Scientism: Science, Methodology, and the Future of Philosophy*

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2020), *For and Against Scientism: Science, Methodology, and the Future of Philosophy* (Rowman & Littlefield/Bloomsbury, 2022), and *Playing God with Emerging Technologies: How to Avoid the Traps of Techno-Optimism and Techno-Pessimism* (Bloomsbury, 2025).

The term *scientism* is used in several ways. It is used to denote an epistemological thesis according to which science is the source of our knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. Relatedly, it is used to denote a methodological thesis according to which the methods of science are superior to the methods of non-scientific fields or areas of inquiry. It is also used to denote a metaphysical thesis according to which what exists is what science says exists. In recent decades, the term *scientism* has acquired a derogatory meaning when it is used in defense of non-scientific ways of knowing. In particular, some theologians and philosophers level the charge of “scientism” against those (mostly scientists) who are dismissive of religion and philosophy. Other philosophers, however, embrace scientism, or some variant thereof, and object to the pejorative use of the term *scientism*.

1. *Scientism* as a Pejorative Term

According to Robert Pennock (1996, 551), the term *scientism* is “a term of derision coined by Hermeneutic critics of science to label those who wanted to apply the methods of the natural sciences ‘inappropriately’ to the human sciences, for which they thought the literary model of Hermeneutic *interpretation* should reign as the proper method” (emphasis in original).

Attempts to apply the empirical methods of the sciences to the human sciences are probably as old as modern science itself. For example, inspired by the work of Isaac Newton, David Hume attempted “to introduce the experimental method of reasoning into moral subjects,” as the full title of his *Treatise on Human Nature* (1739-1740) clearly states.

When Pennock (1996, 551) says that the term *scientism* is “a term of derision,” his target of criticism is Phillip Johnson whose book, *Darwin on Trial* (1991), is the inspiration for the brand of creationism known as “Intelligent Design.” But there are earlier uses of the term *scientism* as a derogatory term by people of faith. For instance, H. Richard Rasmusson (1954, 393) characterizes scientism as “a cult that has made a religion out of science.”

Those who use the term *scientism* as a derogatory term, then, are concerned about science encroaching on fields or areas of inquiry that presuppose the existence of the very things whose existence they take science to be questioning or denying, such as God, the supernatural, and the like. In that respect, as far as the scientism debate is concerned, the term *science* typically covers the physical sciences, such as physics and chemistry, the life sciences, such as biology and genetics, and the social sciences, such as psychology and sociology, but not the arts and the humanities, such as literature, philosophy, and religious studies.

A few decades later, from a term deployed when defending religion from science intruding on its territory, the term *scientism* became a term used in defense of philosophy against science as well. For instance, according to Tom Sorell (1991, x), scientism “is a matter of putting too high a value on science in comparison with other branches of learning or culture,” such as philosophy. The term *scientism* is then used

as a pejorative term that is supposed to pick out an attitude that is condemned as excessive or exaggerated by definition.

As Susan Haack (2007, 17-18) puts it:

Scientism is an exaggerated kind of deference towards science, an excessive readiness to accept as authoritative any claim made by the sciences, and to dismiss every kind of criticism of science or its practitioners as anti-scientific prejudice.

However, as René van Woudenberg et al. (2018, 2) rightly point out:

no one will accept this notion of ‘scientism’ as an adequate characterization of their own views, as no one will think that their deference to science is *exaggerated*, or their readiness to accept claims made by the sciences is *excessive* (emphasis in original).

In fact, Haack (2012, 76) herself observes that, before it was weaponized by those who sought to defend religion and philosophy from science trespassing on their territories, “the word ‘scientism’ was neutral.”

And so, some contemporary philosophers have argued that the term *scientism* should remain neutral. For instance, Rik Peels (2017, 11) argues that we should treat scientism as a neutral thesis, rather than an attitude, since whether it is rational, warranted, or permissible to have such an attitude is a question that should be “up for debate.” Moreover, Peels (2018, 29) argues, “No matter how one understands ‘scientism’ [i.e., as an attitude, an affection, or a stance], it will always imply some scientific thesis

or other [e.g., that ‘we should have a scientific attitude’].”

Likewise, I argue that to define the term *scientism* in a pejorative way is to provide a persuasive definition of *scientism*, to beg the question against anyone who is inclined to endorse scientism, and to turn the scientism debate into a mere verbal dispute (Mizrahi 2017a, 352).

For these reasons, and because “the truth or falsity of scientism matters a great deal” (van Woudenberg et al. 2018, 1), debate is better advanced by following Mikael Stenmark (1997), Rik Peels (2017; 2018) and my own work (Mizrahi 2017a) in treating scientism as a thesis that is up for discussion and debate rather than an attitude that is rendered mistaken *by definition*.

2. *Scientism as an Epistemological Thesis*

The first occurrences of the term *scientism* suggest that it was used to denote an epistemological thesis, in particular, a thesis concerning how knowledge (or some other epistemic good, such as justified belief) about the world and ourselves is acquired. For instance, in Stephen Pearl Andrews’ *The Primary Synopsis of Universology and Alwato: The New Scientific Universal Language* (1871, xiii), *scientism* is defined as “the Spirit or Principle of Science--regular, exact, precise, etc.” By *science*, Andrews (1871, 19) means “a Systematic, Orderly, and somewhat Complete Arrangement of what is certainly known or held to be known, and of what is important to be known, in respect to the particular subject or Department of Being treated of.”

Construed as an epistemological thesis, scientism is a species of empiricism. More specifically, it is the view that gives priority to scientific forms of knowledge and ways of knowing, such as observation and experimentation, over non-scientific forms

of knowledge and ways of knowing, such as armchair reflection. As Patricia Churchland (2011, 4) puts it, “philosophy and science are working the same ground, and evidence should trump armchair reflection.”

As an epistemological thesis, however, scientism is a narrower thesis than empiricism. This is because empiricism allows non-scientific but empirical modes of inquiry to count as knowledge-producing, whereas scientism grants knowledge-producing status to scientific modes of inquiry only. To illustrate this point, consider the following example with respect to observation:

Compare, for instance, the sort of telescopic observations Galileo conducted when he discovered the rings of Saturn with simply lying around and gazing at the night sky. It might seem as if the former is ‘scientific’, whereas the latter is not, but that such gazing can still produce ‘real knowledge’. (Mizrahi 2017a, 354)

Accordingly, observation by means of scientific instruments, such as telescopes, is a scientific mode of observation, and hence knowledge-producing on epistemological scientism.

Understood as an epistemological thesis, scientism can vary in terms of how superior to non-scientific ways of knowing science is taken to be. For instance, to say that *only* psychology can teach us about the workings of the human mind, whereas Moliere and Stendhal can teach us nothing about that (cf. Kitcher 1991, 118), is to subscribe to a strong version of epistemological scientism.

As Peels (2018, 34) points out, other variants of *epistemological scientism* include the following:

- (a) All genuine knowledge is to be found only through (methods of) the natural sciences. (See also Stenmark 1997, 19.)
- (b) The natural sciences provide the only reliable path to knowledge. (See also Rosenberg 2011, 6.)
- (c) All questions can in principle be answered by the natural sciences. (See also Atkins 1995.)
- (d) Everything that can be known can be known through the natural sciences. (See also Russell 1946, 863.)

As Peels (2018) also points out, each of these statements of epistemological scientism can take a weak or a strong version as well. Take (b), for example. The claim that science provides the only reliable path to knowledge is stronger than the claim that science provides the *best* reliable path to knowledge. Unlike the former, which rules out non-scientific paths to knowledge, the latter allows for paths to knowledge other than science, but it says that, of all the paths to knowledge, science is the best one.

Similarly, I distinguish between *Strong Scientism*, which is the view that scientific knowledge is the *only* knowledge we have, and *Weak Scientism*, which is the view that scientific knowledge is the *best* knowledge we have (Mizrahi 2017a). The former implies that those things we call knowledge that are not scientific are not really knowledge at all, whereas the latter implies that there is non-scientific knowledge, although scientific knowledge is better than non-scientific knowledge.

3. *Scientism* as a Methodological Thesis

In addition to *scientism* as an epistemological thesis, early instances of the term *scientism* suggest that it was used to denote a related methodological thesis. For instance, in his definition of *scientism* in *The Primary Synopsis of Universology and Alwato: The New Scientific Universal Language*, Stephen Pearl Andrews (1871, xiii) describes the methods of science as “regular, exact, precise, etc.” Accordingly, scientism as a methodological thesis captures the fact that the scientism debate is partly about “the idea that science, or the scientific method, is superior to all other modes of inquiry” (Beale 2017, 67). That is to say, if the methods and practices of science are indeed more “regular, exact, [and] precise” (Andrews 1871, xiii) than non-scientific modes of inquiry, then the former can be said to be superior to the latter in those respects.

According to both Stenmark (1997) and Peels (2018), *methodological scientism* entails a demand that non-scientific disciplines adopt the methods and practices of science. As Stenmark (1997, 17) puts it, methodological scientism (or “academic-internal scientism”) is the “attempt to extend the use of the methods of natural science to other academic disciplines.” Likewise, according to Peels (2018, 31), “the methodological variety [of scientism] grants that [non-scientific fields] are proper academic disciplines that ask sensible questions, [but] it asserts that they are so only if they adopt the methods of the natural sciences, such as observation and experimentation.”

On the other hand, I argue that non-scientific disciplines would benefit from adopting the methods and practices of science, but it is not a necessary condition for the production of knowledge in those disciplines (Mizrahi 2017a, 2017b, 2018a, 2018b, 2018c). On my

Weak Scientism, non-scientific disciplines are still proper academic disciplines that produce knowledge, even if they do not use the methods and practices of science to do so, it's just that the knowledge produced by scientific disciplines is better (both quantitatively and qualitatively) than the knowledge produced by non-scientific disciplines.

Opponents of scientism often point out that the methods of science have limits. As Patricia Churchland (2011, 3) puts it, "Scientism, as I have been duly wagged, is overreaching." That is to say, there are certain questions that are beyond the scope of scientific inquiry, such as questions about the existence of God and the supernatural (Stenmark 2016, 1-17).

Like epistemological scientism, methodological scientism can take a weak or a strong version as well. According to the *strong* variant of methodological scientism, *only* scientific methods yield knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. This strong version implies that, if non-scientific fields or areas of inquiry are to produce knowledge about the world and ourselves, they must use scientific methods. In that respect, the strong variant of methodological scientism raises concerns about "scientific imperialism" (Kitcher 2017) or "scientific expansionism" (Stenmark 2004, xi-xii), which is when science goes beyond what is considered to be its proper sphere. For this reason, some philosophers have deemed it necessary to defend the importance of the humanities and the arts in education (Nussbaum 2010).

According to the *weak* version of methodological scientism, scientific methods are *better* than non-scientific methods at producing knowledge (or some other epistemic good, such as justified belief) about the world and ourselves. An

advocate of weak methodological scientism, then, can grant that "there is plenty of good, solid work in non-scientific disciplines such as history, legal scholarship, music theory, etc." (Haack 2012, 79), but insist that such work can be improved by the introduction and application of scientific methods (Mizrahi 2018a; 2018b).

4. *Scientism as a Metaphysical Thesis*

In addition to *scientism* as epistemological and methodological theses, early instances of the term *scientism* suggest that it was used to denote a metaphysical thesis as well. For instance, In *The Science of Aesthetics* (1872, 425), Henry N. Day uses the term *scientism* to refer to the thesis that "mind and matter are made one and identical," which Day finds objectionable on the grounds that it ignores the distinction between substance and form, and thus renders the human person "a mysterious inexplicable organism which is neither mind nor matter."

More recently, John Dupré (1988) aligns *scientism* with *physicalism*, which is a thesis about "the physical nature of the mental" (32), and *materialism*, which is the thesis that, "if one removed from the universe all the physical entities, there would be nothing left" (33).

Construed as a metaphysical thesis, then, *scientism* is a species of materialism, physicalism, or naturalism more broadly (Armstrong 1978, 261), according to which "reality is exhausted by the natural world, in the sense of the world as the natural sciences are capable of revealing it to us" (McDowell 1998, 175). This sort of naturalism that restricts reality to what science can discover is what John McDowell casually calls "philistine scientism." According to McDowell (1998, 72):

A scientific conception of reality is eminently open to dispute. When we ask the metaphysical question *whether reality is what science can find out about*, we cannot, without begging the question, restrict the materials for an answer to those that science can countenance (emphasis added).

Contrary to McDowell, James Ladyman et al. (2007, 30) argue that “Naturalism requires that, since scientific institutions are the instruments by which we investigate objective reality, their outputs should motivate all claims about this reality, including metaphysical ones.” In other words, science, especially physics, is our guide to what exists.

Some contemporary philosophers in the analytic tradition endorse both epistemological scientism and metaphysical scientism. According to Alex Rosenberg (2017, 213), for example, scientism is the combination of naturalism and empiricism. Likewise, for Ladyman (2011, 97), scientism “incorporates elements of both empiricism and materialism.” Together with Don Ross, David Spurrett, and John Collier, Ladyman adopts a “scientistic stance,” which is “the synthesis of the empiricist and materialist stances” (2007, 99). Needless to say, physicalism, naturalism, and materialism, as well as empiricism, are by no means generally accepted among contemporary academic philosophers in the analytic tradition (Bourget and Chalmers 2014). Table 1 gives a brief summary of the varieties of theses that fall under the label of “scientism.”

Table 1. Varieties of scientism

	scientism		
	<i>epistemological</i>	<i>methodological</i>	<i>metaphysical</i>
strong	Scientific knowledge is the only knowledge we have.	Scientific methods are the only methods that produce knowledge (or justified belief, etc.).	Science is the only guide to the nature of reality.
weak	Scientific knowledge is better than non-scientific knowledge.	Scientific methods are better than non-scientific methods in producing knowledge (or justified belief, etc.).	Science is the best guide to the nature of reality.

5. Key Arguments for and Against Scientism

Arguments for and against scientism usually trade on what proponents take to be the successes of science and what opponents take to be the internal inconsistency or the negative effects of endorsing scientism. Proponents of scientism argue that the success of science is evidence for scientism. For example, according to James Ladyman et al. (2007):

Powerful explanations and successful predictions have been produced by sciences that aren't physics and which refer to such entities. They are good ammunition for an epistemic success argument in favour of naturalism [that is, scientism as a metaphysical thesis] (Ladyman et al. 2007, 41).

In other words, the fact that our best scientific theories successfully explain and accurately predict natural phenomena is evidence that the methods and practices of science are superior to non-scientific modes of inquiry and that the natural world is pretty much the way science says it is, given that other fields or areas of inquiry, such as metaphysics, “can claim no such success” (Ladyman et al. 2007, 7).

René van Woudenberg et al. (2018, 17) criticize this argument for scientism from the success of science by claiming that “it hardly needs saying that a claim about the comparative success of science nowhere near implies that science is our *only* route to knowledge, rational belief, etc.” (emphasis added).

It is true that the success of science does not *entail* that science is the only way of knowing about the world and ourselves, but it is not clear that this is what the argument from the success of science

amounts to. That is to say, the argument for scientism from the success of science need not be a deductive argument whose premises entail its conclusion. Rather, the success of science is supposed to be strong evidence for (or a good reason to accept) scientism.

Similarly, the conclusion of the argument for scientism from the success of science need not be construed as *Strong Scientism*, namely, the thesis that science is the *only* way of knowing about the world and ourselves. Rather, it can be construed as *Weak Scientism*, namely, the thesis that science is the *best* way of knowing about the world and ourselves. Understood as a non-deductive argument for *Weak Scientism*, the argument from the success of science might provide strong reasons, namely, the explanatory, predictive, and instrumental success of science, to accept *Weak Scientism* (Mizrahi 2017a, 2017b, 2018a, 2018b, and 2018c).

Peter Harrison (2018) also criticizes the argument from the success of science. Harrison (2018, 13) argues that the “history of science is not the place to turn for those seeking an evidentiary basis for ontological naturalism [or metaphysical scientism].” This is because “historical actors did not recognize the natural-supernatural distinction in the way we presently do,” Harrison (2018, 8) argues, and because, throughout the history of science, supernatural explanations were often given to natural phenomena (e.g., the role of God in Newtonian mechanics).

By contrast, I argue that, in addition to the explanatory, predictive, and instrumental success of science, there is another sense in which scientific disciplines can be said to be more successful or better than non-scientific disciplines. In general, scientific disciplines are *quantitatively* better than non-scientific disciplines in terms of research output and research impact.

That is to say, scientific disciplines produce more research overall (as

measured by publications) than non-scientific disciplines do and the research they produce has more impact overall (as measured by citations) than non-scientific research has. Together with the qualitative superiority of scientific knowledge over non-scientific knowledge (in terms of explanatory, predictive, and instrumental success), the quantitative superiority of scientific knowledge over non-scientific knowledge provides good reasons for accepting *Weak Scientism* (Mizrahi 2017a, 2017b, 2018a, 2018b, 2018c).

A common argument against scientism is that it is internally inconsistent. For instance, Jeroen de Ridder (2014, 27) argues that “scientism suffers from self-referential problems.” That is:

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 (de Ridder 2014, 27).

Contrary to de Ridder, I argue that there can be scientific evidence for scientism and that there is nothing self-referentially incoherent or inconsistent about that. First, one could argue that scientific knowledge is better than non-scientific knowledge on the basis of research output and research impact. Insofar as such an argument would be an inductive argument from samples of scientific research compared to non-scientific research, it would be a scientific argument for scientism (Mizrahi 2017a, 355-362). Second, if there can be no scientific evidence for scientism, since that would be self-referentially incoherent, then there can be no proofs for rules of inference in logic, either. Third, weaker versions of scientism, according to which scientific ways of knowing are *better* than non-scientific ways of knowing are immune from the self-referential incoherence charge. For they allow that there are ways of knowing other than scientific ones, and that there is knowledge

other than scientific knowledge, but they insist that scientific ways of knowing are better than non-scientific ways of knowing, and that scientific knowledge is better than non-scientific knowledge (Mizrahi 2018b, 41-42).

Finally, to insist that scientism must be supported by non-scientific evidence is to presuppose some sort of foundationalism about knowledge and justification. Proponents of scientism, however, need not accept that kind of foundationalism about knowledge and justification. They could appeal to coherentism or reliabilism to argue that our scientific knowledge coheres with our non-scientific knowledge or that our scientific ways of knowing are generally reliable.

When it is not taken to be a risk in itself (see, e.g., Beltramini 2019), arguments against scientism often focus on what critics perceive to be the negative consequences of endorsing scientism. For example, Kitcher (2012) claims that scientism, which he distinguishes from science but does not define, makes us underestimate “the impact of the humanities and the arts” and “inspires scientific imperialism.” According to Dupré (2001, 16), scientific imperialism is “the tendency for a successful scientific idea to be applied far beyond its original home.”

Two important points about these criticisms of scientism should be made. First, more often than not, the critics use the term *scientism* in its derogatory sense. As van Woudenberg et al. (2018, 2) rightly point out, however, “no one will accept this notion of ‘scientism’ as an adequate characterization of their own views, as no one will think that their deference to science is *exaggerated*, or their readiness to accept claims made by the sciences is *excessive*” (emphasis in original).

Second, even if it is true that accepting scientism will have negative consequences, it is not clear how that is

supposed to be evidence relevant to whether scientism is true or not. Merrilee H. Salmon (2013, 209) calls this sort of argument the “fallacy of mistaking some consequence of a belief with evidence for it.” We commit this fallacy when we accept or reject a claim “because of its consequences--the harm or good that might be caused by holding the belief” (Salmon 2013, 209).

For proponents of scientism, on the other hand, the introduction of scientific methods into non-scientific fields or areas of inquiry is seen as positive, not negative. Proponents of scientism argue that, if we want non-scientific disciplines to enjoy the sort of success that scientific disciplines do (that is, explanatory, predictive, and instrumental success), then we should want to introduce and make use of scientific methods in those non-scientific fields.

For instance, Wesley Buckwalter and John Turri argue that the application of methods from the social sciences in philosophy (also known as “experimental philosophy”) has been quite successful. As they put it, “Experimental, observational, and statistical techniques have significantly contributed to research in epistemology, action theory, ethics, philosophy of language, and philosophy of mind” (Buckwalter and Turri 2018, 282).

Similarly, I argue that the introduction of methods from data science into philosophy of logic particularly (Mizrahi 2019) and philosophy generally (Mizrahi 2018b, 48) might bring to academic philosophy the sort of success enjoyed by the sciences. And Ibo Van De Poel (2020, 231-244) argues that, if they want to make academic philosophy “societally relevant,” academic philosophers need to incorporate the synthetic methods of designers as well as techniques of experimentation into philosophical inquiry.

Conclusion

The mere mention of scientism tends to evoke strong negative sentiments among academic philosophers (Mizrahi 2023a). Such visceral reactions run the risk of reducing the scientism debate in academic philosophy to a mere verbal dispute (Mizrahi 2023b). Thankfully, academic philosophers like van Woudenberg et al. (2018) and Turunen et al. (2023) have been pushing the scientism debate in a more constructive direction in recent years. They insist on treating scientism as a neutral thesis that can be argued for or against. As such, scientism comes in different varieties (Table 1), some of which are more plausible than others.

If the introduction of scientific methods into academic philosophy can be, and has been, successful, as some proponents of (some variety of) scientism argue (e.g., Buckwalter and Turri 2018), then it is difficult to explain the strong opposition to the introduction of scientific methods into philosophy by some academic philosophers.

For instance, sentiment analysis has been used in various fields, from business (Ligthart et al. 2021) to education (Shaik et al. 2023), quite successfully. Why resist its application to research in academic philosophy (Mizrahi 2023a)? Is academic philosophy essentially different from other academic disciplines where sentiment analysis has been used successfully? Are there good reasons to be concerned about the introduction of scientific methods into academic philosophy as some academic philosophers are (e.g., Haack 2017)?

These are some of the questions I wanted to begin to broach in my [*For and Against Scientism: Science, Methodology, and the Future of Philosophy*](#).

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