

# The mystery of consciousness shows there may be a limit to what science alone can achieve

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The progress of science in the last 400 years is mind blowing. Who would have thought we'd be able to trace the history of our universe to

its origins 14 billion years ago? Science has increased the length and the quality of our lives, and the technology that is commonplace in the modern world would have seemed like magic to our ancestors.

For all of these reasons and more, science is rightly celebrated and revered. However, a healthy pro-science attitude is not the same thing as "[scientism](#)," which is the view that the [scientific method](#) is the only way to establish truth. As the problem of consciousness is revealing, there may be a limit to what we can learn through science alone.

Perhaps the most worked out form of scientism was the early 20th-century movement known as [logical positivism](#). The logical positivists signed up to the "[verification principle](#)," according to which a sentence whose truth can't be tested through observation and experiments was either logically trivial or meaningless gibberish. With this weapon, they hoped to dismiss all metaphysical questions as not merely false but nonsense.

These days, logical positivism is almost [universally rejected](#) by philosophers. For one thing, logical positivism is self-defeating, as the verification principle itself cannot be scientifically tested, and so can be true only if it's meaningless. Indeed, something like this problem haunts all unqualified forms of scientism. There is no scientific experiment we could do to prove that scientism is true; and hence if scientism is true, then its truth cannot be established.

In spite of all of these deep problems, much of society assumes scientism to be true. Most people in the UK are totally unaware that "metaphysics" goes on in almost every philosophy department in the country. By metaphysics, philosophers don't mean anything spooky or supernatural; this is just the technical term for philosophical, as opposed to scientific, enquiry into the nature of reality.

## Truth without science

How is it possible to find out about reality without doing science? The distinguishing feature of philosophical theories is that they are "empirically equivalent," which means you can't decide between them with an experiment.

Take the example of my area of research: the philosophy of consciousness. Some philosophers think that consciousness emerges from physical processes in the brain—this is the "physicalist" position. Others think it's the other way around: consciousness is primary, and the physical world emerges from consciousness. A version of this is the "[panpsychist](#)" view that consciousness goes all the way down to the fundamental building blocks of reality, with the word deriving from the two Greek words pan (all) and psyche (soul or mind).

Still others think that both consciousness and the physical world are fundamental but radically different—this is the view of the "dualist." Crucially, you can't distinguish between these views with an experiment, because, for any scientific data, each of the views will interpret that data in their own terms.

For example, suppose we discover scientifically that a certain form of brain activity is correlated with the conscious experience of an organism. The physicalist will interpret this as the form of organization which turns non-conscious [physical processes](#)—such as electrical signals between brain cells—into conscious experience, whereas the panpsychist will interpret it as the form of organization which unifies individual conscious particles into one larger conscious system. Thus we find two very different philosophical interpretations of the same scientific data.

If we can't work out which view is right with an experiment, how can we choose between them? In fact, the selection process is not so dissimilar

from what we find in science. As well as appealing to [experimental data](#), scientists also appeal to the theoretical virtues of a theory, for example how simple, elegant and unified it is.

Philosophers too can appeal to theoretical virtues in justifying their favored position. For example, considerations of simplicity seems to count against the dualist theory of consciousness, which is less simple than its rivals in so far as it posits two kinds of fundamental stuff—physical stuff and consciousness—whereas physicalism and panpsychism are equally simple in positing just one kind of fundamental stuff (either physical stuff or consciousness).

It could also be that some theories are incoherent, but in subtle ways that require careful analysis to uncover. For example, I have [argued](#) that physicalist views of [consciousness](#) are incoherent (although—like much in philosophy—this is controversial).

There is no guarantee that these methods will yield a clear a winner. It could be that on certain philosophical issues, there are multiple, coherent, and equally simple rival theories, in which case we should be agnostic about which is correct. This would in itself be a significant philosophical finding concerning the limits of human knowledge.

Philosophy can be frustrating because there is so much disagreement. However, this is also true in many areas of science, such as history or economics. And there are some questions on which there is a [modest consensus](#), for example, on the topic of free will.

A tendency to mix up philosophy with a growing anti-science movement undermines the united front against the real and harmful opposition to science we find in climate change denial and anti-vax conspiracies.

Like it or not, we can't avoid philosophy. When we try to do so, all that

happens is we end up with bad philosophy. The first line of Stephen Hawking and Leonard Mlodinow's book "[The Grand Design](#)" boldly declared: "Philosophy is dead." The book then went on to indulge in some incredibly crude philosophical discussions of free will and objectivity.

If I wrote a book making controversial pronouncements on [particle physics](#), it'd be rightly ridiculed, as I haven't been trained in the relevant skills, haven't read the literature, and haven't had my views in this area subject to peer scrutiny. And yet there are many examples of scientists lacking any philosophical training publishing very poor books on philosophical topics without it impacting their credibility.

This might be sounding bitter. But I genuinely believe society would be deeply enriched by becoming more informed about philosophy. I have hope that we will one day move on from this "scientific" period of history, and understand the crucial role both science and [philosophy](#) have to play in the noble project of finding out what reality is like.

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