



What is philosophy of science?

Philosophy of science is the branch of philosophy that deals with conceptual problems and foundational issues arising from the current practice of science as well as its history. It can ask general questions such as: What is science? What counts as scientific knowledge? How do our scientific theories track nature? Or it can ask more specific questions such as: What is the nature of space-time? How should we classify biological species? How effective are randomized controlled trials for testing new drugs in medicine? And so on.



What is the aim of science?

There are two main traditions with respect to the aim of science. According to the first tradition the aim of science is merely to *save the phenomena*: That is, to provide us with a good description and a good analysis of the available evidence, without caring whether the explanatory story that the theory provides is true or false. According to the second tradition, the aim of science is not just to save the phenomena, but rather to tell us the truth about the phenomena. In other words, we want the scientific theory to *get things right* in the sense that what it says about the phenomena *corresponds* to the way things *really are* in nature.



Scientific Realism

Scientific realism is associated with the second tradition with respect to the aim of science. According to scientific realism, science should aim at providing theories that we *believe to be true*.

But why would someone hold this view? The most famous argument for scientific realism is called the 'no miracles argument':

Premise 1: Scientific theories, in general, are very successful in making predictions.

Premise 2: This is either because of a miracle or because scientific theories are true.

Premise 3: The existence of miracles is highly doubtful.

Conclusion: Therefore, scientific theories must be true.

CAN WE KNOW OBJECTIVE TRUTH?

Scientific Anti- Realism

Scientific anti-realism is associated with the first tradition with respect to the aim of science. According to the most famous of its possible formulations, namely *constructive empiricism*, accepting a theory does not imply *believing* that the theory is *true*. Instead, accepting a theory implies only the *belief* that the theory is *empirically adequate* in the sense that it *saves the phenomena*. And, contrary to the ‘no miracles’ argument for scientific realism, constructive empiricism can explain the success of science by postulating a ‘Darwinian’ explanation for it: Scientific theories are born into a life of fierce competition where only the successful ones survive, i.e., those that latch onto actual regularities in nature and save the phenomena!



Questions

Explain in your own words what the aims of science might be. Can you give an example?

What is scientific realism? What is involved in embracing a realist view of science?

What is constructive empiricism? Why is it an anti-realist position?

How can a constructive empiricist explain the success of science? Can you think of any example that may illustrate this point?

Do you think that it is possible for a scientific theory to be false? Can you give any examples?

INTRODUCTION TO PHILOSOPHY MOOC



Are scientific theories true?

What is the aim of science? Are scientific theories objectively true? If so, what does this mean? Should we be realists about science?

