

Objectivity in Science

(adapted from the Stanford Encyclopedia of Philosophy, “Scientific Objectivity”)

Scientific objectivity is a desired characteristic of scientific claims, methods and results. It expresses the idea that the claims, methods and results of science are not, or should not be influenced by particular perspectives, value commitments, community bias or personal interests, to name a few relevant factors. Objectivity is often considered as an ideal for scientific inquiry, as a good reason for valuing scientific knowledge, and as the basis of the authority of science in society.

Objectivity as Faithfulness to Facts



The idea is that scientific claims are objective in so far as they faithfully describe facts about the world. The philosophical rationale underlying this conception of objectivity is the view that there are facts “out there” in the world and that it is the task of a scientist to discover, to analyze and to systematize them. If a claim is “objective,” it successfully captures some feature of the world.

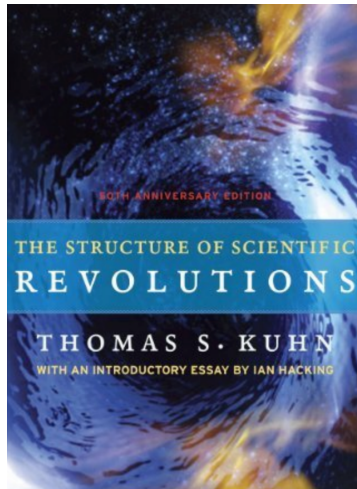
In this view, science is objective to the degree that it succeeds at discovering and generalizing facts, abstracting from the perspective of the individual scientist. Although few philosophers have fully endorsed such a conception of scientific objectivity, the idea figures recurrently in the work of prominent 20th century philosophers of science. Relatedly, scientific realism sees the goal of science to find out the truths about the world, and according to which we have reason to believe in the truth of our best-confirmed scientific theories.

According to a popular picture, science progresses toward truth by adding true and eliminating false beliefs from our best scientific theories. By making these theories closer to the truth, scientific knowledge grows over time. If this picture is correct, then over time scientific knowledge will become more objective, more faithful to facts.

Limitations to the Idea of Objectivity

It is inherent in the above picture of scientific objectivity that observations can, at least in principle, decide between competing theories: if they did not, the conception of objectivity as faithfulness would be a pointless one to have, as we would not be in a position to verify it. Many philosophers have argued that the relation between observation and theory is way more complex and that influences can actually run both ways. The most lasting criticism, however, was delivered by Thomas S. Kuhn in “The Structure of Scientific Revolutions”.





Kuhn's analysis is built on the assumption that scientists always view research problems through the lens of a paradigm, defined by set of relevant problems, axioms, methodological presuppositions, techniques, and so forth. Kuhn provided several historical examples in favor of this claim. Scientific progress—and the practice of normal, everyday science—happens within a **paradigm** that guides the individual scientists' puzzle-solving work and that sets the community standards.

A meaningful use of objectivity presupposes an ability to perceive and to describe the world from a specific perspective—for example, when we try to verify the claims of a scientific theory. Only within a peculiar scientific worldview, however, can the concept of objectivity be applied meaningfully. That is, scientific method cannot free itself from the particular scientific theory to which it is applied; the door to **standpoint-independence** is locked. It is impossible, therefore, to defend the claim that science is free from perspectival bias and that it increasingly approximates the truth.