

Support and trend of falsifiability

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This is a partial translation of:

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Support and trend of falsifiability

Popper's supporters argued that most criticism is based on an incomprehensible interpretation of his ideas. They argue that Popper should not be interpreted as meaning that falsifiability is a sufficient condition for the demarcation of science. Some passages seem to suggest that he considers it is only a necessary condition. (Feleppa 1990, 142) Other passages would suggest that for a theory to be scientific, Popper requires (besides falsifiability) other tests, and that negative test results are accepted. (Cioffi 1985, 14–16) A demarcation criterion based on falsifiability that includes these elements will avoid the most obvious counter-arguments of a criterion based on falsifiability alone. (Hansson 2017)

David Miller believes that the demarcation problem and the problem of induction at Popper are sometimes "lamentably misunderstood... The problem of demarcation is solved much as Popper solved it." (Miller 2009b) Many critics misunderstand Popper's philosophy in the demarcation problem. His task is not to "distinguish scientific and non-scientific matters in a way which exhibits a surer epistemic warrant or evidential ground for science than for non-science," according to Laudan, (Laudan 1983, 118) nor "to explicate the paradigmatic usages of scientific". (Laudan 1983, 122) The issue is not about safety, mandate, and reasons for those living with the fear that they may not be "entitled to believe any scientific theories," (Papineau 2006, 63) only accidentally concerned with the ratification of the non-scientific status. (Grünbaum 1989) The main problem of the theory of knowledge, at least for an empiricist, is quite different in nature: Popper has described the main problem of the theory of knowledge as "the critical analysis of the appeal to the authority of experience" (K. Popper 1934, chap. 10) The philosophy of Popper strongly opposes. It expresses, as Miller states, all these trends in fashion and all views science as "a body of knowledge":

"In the present context, it hardly matters whether or not I am right concerning the irrefutability of any of these three theories [those of Freud, Adler, and Marx]: here they serve merely as examples, as illustrations. For my purpose is to show that my 'problem of demarcation' was from the beginning the practical problem of assessing theories, and of judging their claims. It certainly was not a problem of classifying or distinguishing some subject matters called 'science' and 'metaphysics'. It was, rather, an urgent practical problem: under what conditions is a critical appeal to experience possible | one that could bear some fruit?" (K. R. Popper 1983)

The clear philosophical, and even logical, problem that emerges here is: Under what circumstances is an empirical investigation worthwhile to engage? with the clear solution: "Since the formulation of a hypothesis, its acceptance as a candidate for the truth, must precede its consideration, the task of an empirical investigation cannot be to promote hypotheses, but only to demote them. Empiricism demands that a hypothesis be retained unless it clashes in an appropriate

way with experience. An accepted hypothesis therefore remains accepted until it is rejected. No further action is needed." (Miller 2009a)

Miller believes that the problem of induction is also solved in the way Popper did it.

Milos Taliga, in *Against Watkins: From a Popperian Point of View*, (Taliga 2004) argues against John Watkins' critique (Watkins 1997) which argues that Popper's verisimilitude theory (along with his theory of corroboration) introduces justifying and inductivist elements. In short, Watkins argues that Popper's statement that "we can know, or at least have reason to believe, that we are making progress with respect to truth" (K. R. Popper 1983, chap. 16) is certainly a justification, and the assertion that "if two competing theories have been criticized and tested as thoroughly as we could manage, with the result that the degree of corroboration of one of them is greater than that of the other, we will, in general, have reason to believe that the first is a better approximation to the truth than the second" (K. R. Popper 1983, 58) is sufficient for Watkins to come to the conclusion that "in short, corroboration-appraisals provide some justification for the corresponding verisimilitude-appraisals ... It seems clear that an inductive element has been let in here". (Watkins 1997, chaps. 16–17) After describing Watkins's argument in detail, Taliga analyzes it and ultimately concludes that the essence of criticism is

"the question 'Why the best corroborated theory is the best theory?' Watkins thinks that Popper's answer would be: 'Because it is more truthlike than all the others considered and *we can know* it, or at least have *positive reasons* to believe in it'. But the truth is that Popper *always* emphasized that our verisimilitude-appraisal of competing hypotheses is *only a guess*. He also insisted that we *can defend* it by the help of corroboration-appraisals and other *critical reasons*. But we *cannot justify* it by them." (Taliga 2004, 154)

Watkins transforms Popper's critical reasons (offered to defend but not to justify) in positive reasons (offered to justify).

Carl Hempel, in *Empirical Statements and Falsifiability* (Hempel 1958) also criticizes Watkins' statements against Popper. Watkins tends to conceal the nature of the problem at hand

by arguing that the falsifiability criterion of empirical statements is itself a qualifying statement as true or false, giving Popper "an attempt to falsify his falsifiability criterion of science." (Watkins 1997, 122) But Popper, far from considering his falsifiability criterion as a falsifiable statement, is very explicit in characterizing his proposal as a "proposal for a stipulation" that must be judged by its suitability to purpose its theoretical.

The trend

After the falsifiability concept was overthrown, the issue of the method of demarcation between science and pseudoscience was again raised: to choose the most probable theory for educational purposes, the best-correlated theory for the sake of truth, or the most informative and explanatory theory to get closer the most of reality? It may be that the most informative and explanatory theories are not the riskiest estimate, or not likely to have the highest probability before the test, so it would not necessarily give you the greatest chance of learning. A theory that would correspond to somewhat falsifiability would be the most probable theory, having the best chance of learning from its own mistakes. (Derksen 1985) But there is also a need for corroboration.

Promoting methodological pluralism would be a solution that can ease the difficult choice between the most probable theory and the best corroborated theory, but choosing the most well-correlated theory puts at risk the empirical character and the rationality of science, and by choosing the most probable we risk losing the best approximation of truth.

In 1978, Paul Thagard proposed that pseudoscience be distinguished from science first of all because it would be less progressive than alternative theories over a long period of time, and its supporters fail to recognize or solve problems with the theory. (Thagard 1978) In 1983, Mario Bunge suggested the categories of "faith areas" and "research areas" to help distinguish between

pseudoscience and science, where the former is primarily personal and subjective, and the second involves a certain systematic approach. (Bunge 1982)

The importance of demarcation seems to have decreased after Laudan (Laudan 1983) argued that there was no chance of finding a necessary and sufficient criterion for something as heterogeneous as scientific methodology. The delimitation criteria would have historically been used as "war machines" in polemical disputes between "scientists" and "pseudoscientists." In his view, the demarcation between science and non-science was a pseudo-problem, more importantly focusing on the distinction between reliable and unreliable knowledge. (Laudan 1983) Sebastian Lutz, on the other hand, argues that demarcation must not be the only necessary and sufficient condition; there must be a necessary criterion and a sufficiently different criterion. (Lutz 2011) Other critics have supported multiple demarcation criteria specific to each major branch of science.

The demarcation issue was compared by Michael LeVine with the issue of distinguishing false news from real news, which became prominent in the US presidential election in 2016. (LeVine 2016)

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