

Observation, meaning and theory: Review of For and Against Method by Imre Lakatos and Paul Feyerabend

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Review of FOR AND AGAINST METHOD, Including Lakatos's Lectures on Scientific Method and the Lakatos-Feyerabend Correspondence

By Imre Lakatos and Paul Feyerabend; Edited and with an introduction by Matteo Motterlini

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Abstract

Imre Lakatos and Paul Feyerabend initially both accepted Popper's philosophy of science, but then reacted against it, and developed it in different directions. Lakatos sought to reconcile Kuhn and Popper by characterizing science as a process of competing research programmes, competing fragments of Kuhn's normal science. Feyerabend emphasized the need to develop rival theories to facilitate severe empirical testing of accepted theories, but then, as a result of a disastrous mistake, came to hold that theories that are incompatible with one another cannot be compared empirically. He ended up rejecting method in science. All four philosophers, Popper, Kuhn, Lakatos and Feyerabend missed the decisive defect in Popper's philosophy of science: persistent acceptance of unified theories only when endlessly many empirically more successful disunified rivals are available means that physics makes a big, highly problematic metaphysical assumption about the nature of the universe: it is such that some kind of underlying unity exists in nature. We need to adopt a new conception of science. In order to subject this implicit metaphysical conjecture to sustained critical assessment in an attempt to improve it, we need to see science as making a hierarchy of metaphysical assumptions about the knowability and comprehensibility of the universe, these assumptions becoming less substantial and more likely to be true as we ascend the hierarchy. Elements of Popper, Kuhn and Lakatos are to be found in this picture, but it also differs radically from all three. It more closely resembles Einstein's mature views about the nature of science.

Imre Lakatos and Paul Feyerabend began their intellectual careers by developing Karl Popper's philosophy of science in different directions. Popper is of course famous for his view that science makes progress by means of conjecture and refutation, it being impossible to verify empirically any scientific theory.

Lakatos, in his *Proofs and Refutations*, sought to extend this to mathematics. Here too, he suggested, progress is made by means of conjecture and refutation. On the face of it, there is a big difference between science and mathematics, in that in the latter alone there are proofs. Lakatos had the temerity to suggest that a proof may increase the vulnerability of the theorem in question to falsification, in that the proof acts as an aid to the discovery of counterexamples.

Feyerabend sought to extend Popper's philosophy of science by arguing that, in order to maximize exposure of an accepted scientific theory to attempted falsification it is essential to develop rival theories that suggest potential falsifying experiments.

Lakatos and Feyerabend then both rebelled against Popper, but for rather different reasons. Lakatos sought to reconcile the very different views of science held by Popper and Thomas Kuhn. According to Kuhn, far from seeking falsifications of the best available theory, as Popper held, for most of the time scientists protect the accepted theory, or "paradigm", from refutation, the task being to fit recalcitrant phenomena into the framework of the paradigm. Only when refutations become overwhelming, does crisis set in; a new paradigm is sought for and found, a revolution occurs, and scientists return to doing "normal science", to the task of reconciling recalcitrant phenomena with the new paradigm. Lakatos sought to reconcile Popper and Kuhn by arguing that science consists of competing fragments of Kuhnian normal science, or "research programmes", to be assessed, eventually, in terms of their relative empirical success and failure. Instead of research programmes running in series, one after the other, as Kuhn thought, research programmes run in parallel, in competition, this doing justice to Popper's demand that there should be competition between theories (a point emphasized especially by Feyerabend). Lakatos became so impressed with the Kuhnian point that theories always face refutations, the empirical successes of a theory being a far more important guide to scientific progress than refutation, that he came to the conclusion that Popper's philosophy of science was untenable.

Feyerabend's route to rejecting Popper was different. He set out to refute the logical empiricist idea that theories acquire meaning by having it transported upwards from descriptions of empirical phenomena, by exploiting the point that such descriptions are "theory laden", imbued with theoretical assumptions. But then Feyerabend made a disastrous blunder. Having demolished the (absurd) idea that meaning is transported upwards, from observation statements to theory, he adopted the equally absurd opposite idea, that meaning is transported downwards, from theory to observation statements. From this, Feyerabend concluded that different theories could not share the same observation language, and hence could not be compared empirically, which in turn meant that there could no such thing as scientific method, the assessment of rival theories by means of evidence.

Lakatos and Feyerabend became friends, united at least in their opposition to Popper. They embarked on a conspiracy of disputation. Feyerabend would annihilate method in science, Lakatos would annihilate Feyerabend's annihilation, and so on, the outcome being massive mutual promotion. The present book is the record of the scheme. It begins with a sparkling imaginary debate between the two protagonists written by the editor, Matteo Motterlini (who is to be congratulated on his editing of the book). There is then a verbatim series of lectures given by Lakatos at the London School of Economics in 1973, which does not add much to what Lakatos has published elsewhere, the jokes and gossip rather crowding out the arguments. After a short piece by Feyerabend defending methodological anarchism, the bulk of the rest of the book is devoted to letters exchanged between the two protagonists. They hurl abuse at each other as a form of affection, boast about their conquest of girls, their trouncing of opponents, and complain about their ailments. Feyerabend wrote his part of the great debate, subsequently published as *Against Method*, but in 1974 Lakatos died when only 51, and before his part of the plan had been executed.

I have to confess that I enjoyed the book, especially the correspondence. Wildly politically incorrect, full of bizarre excesses, boasts, abuse for all and sundry, nevertheless through these letters the Imre Lakatos and Paul Feyerabend that I knew come vividly back to life. I am not sure, however, that much is added of intellectual worth to what Lakatos and Feyerabend have already published.

In my view, all four philosophers of science I have mentioned, Popper, Kuhn, Lakatos and Feyerabend, missed one absolutely fundamental point about science. In science preference is

persistently given to simple, explanatory or unifying theories, and this means that science makes a big, permanent assumption about the nature of the world, namely that it has a simple, comprehensible, unified dynamic structure. In order to make rational sense of this, we need to construe science as making a hierarchy of metaphysical assumptions concerning the comprehensibility and knowability of the universe, these assumptions becoming less and less substantial as we ascend the hierarchy, and therefore more and more likely to be true. The upper insubstantial assumptions are adopted by science permanently, there being no circumstances in which progress could be helped by their repudiation. The lower, more substantial assumptions are accepted and rejected in the light of which seems best able to promote empirical progress. Elements of Popper, Kuhn and Lakatos are to be found in this picture, but it also differs radically from all three. It more closely resembles Einstein's mature views about the nature of science.

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