

Popper and Kuhn: Where they Clash, How They Compliment Each Other, and Drawing Conclusions

It has been said that the epistemological premises of Thomas Kuhn and Karl Popper have every reason to negate one another. For the last half century, these men have had to withstand the onslaught of intellectual and ideological attacks for their claims of scientific development and evolution. Popper, a follower of Charles Pierce, developed his unique theory of falsification as a form of natural selection in the scientific sphere. Kuhn, a graduate student during Popper's time, formulated his own ideas about science as a social development defined by the presence or absence of a paradigm. Pat Hutcheon in her essay "Popper and Kuhn on the Evolution of Science" lays out an argument for the "promising complementarity" the science community can gain from the comparison of these two men's claims. Hutcheon she is able to identify specific instances of similarity, undeniable differentiation, as well as areas of "promising complementarity" between Popper and Kuhn. In an analysis of a 1965 debate between Popper and Kuhn sponsored by Imre Lakatos, M. G. Narasimhan outlines just how different the two philosophers are. Hutcheon and Narasimhan share an understanding of the contrasting views between Kuhn and Popper however, Hutcheon's argument for the agreeability of their theories is overlooked by Narasimhan and what undercuts his analysis.

Thomas Kuhn and Karl Popper contributed valuable insights about the "nature of science and the way in which scientific knowledge evolves (Hutcheon 1)." Generally speaking, a theory's "unfitness" and falsification, Popper's and Kuhn's ideas, respectively, share a common perspective on the growth of scientific knowledge. When a scientist's observations are found to be incompatible with the conceptual framework of the time, it can raise doubts on the solidity of the theory. Popper's idea of falsification helps identify the most suitable hypothesis that can relate to contemporary modes of testing and measurements. In addition, even though the

Kuhnian concept of “normal science” was not originally in congruence with Popper’s theories, Popper later agreed that “normal science” did exist as a significant aspect of the behavior of scientists. On the topic of falsification, both theorists agreed that it takes more than one incident of falsification for the complete discrediting of a science. It is mainly through a process of deductive reason in a “seemingly inductive direction” which Popper and Kuhn assess a statement’s universality. The parameters for a legitimate change in theory are another characteristic Popper and Kuhn share. For Popper, the new theory must “solve the problems which its predecessor solved at least as well as did its predecessor; and (2) it should allow the deduction of predictions which do not follow from the older theory; that is to say...an increase in verisimilitude (Popper 1977, 149-9).” Hutcheon goes on to explicate the “rules of communication” and how they are fundamental in both men’s arguments. A “close-knit verbal community” will allow scientists to proceed with research without having the constant burden of having to explain themselves at every step. Kuhn further an argument that scientists “agree in their identification of a paradigm without agreeing on a full interpretation or rationalization of it;” the loosely defined yet universally understood concepts “will not prevent a paradigm from guiding research (Kuhn 44).”

Popper and Kuhn show similarity in identifying that the aim of human knowledge was not to reach the point of the “‘essential’ nature of reality.” Kuhn actually argues that scientific knowledge has no set goals. Hutcheon also argued that each theorist claimed that scientific rigor depends on the “method determined by the process itself.” This definition seems to rely heavily on circular reasoning and therefore should not be viewed as reliable as the rest of her proven arguments.

Hutcheon drew clear connections where Popper and Kuhn agreed exactly. Both viewed science as not merely an instrument (for extrapolating the truth or legitimizing a claim). Neither of them aligned with Pragmatists (even though some of their deduction processes would have us think otherwise). Popper thought of Pragmatists as inconsistent: the only thing that may be concluded from the empirical process of science, Popper explained in argument to the Pragmatist's definition, is falsification. Probably the most poignant similarity between Popper and Kuhn, however, was their efforts to separate science from ideology (even though Kuhn went even further by identifying the historical reasons for such). Narasimhan found that both Popper and Kuhn readily agreed that changes in the scientific community, whether they are on the level of intrinsic value or paradigms, held some semblance to a religious conversion. "Similarly when scientists change their allegiance from one paradigm to another they are forced to look at reality through a new pair of spectacles (Narasimhan 4)."

Equally credible to the surmountable evidence for the similarities between Thomas Kuhn and Karl Popper is the evidence which proves their difference. Ultimately, the two are driven by different questions. Specifically, it was a battle between falsification and verification. As for the growth of scientific knowledge, Popper believed it builds on a process comparable to natural selection while Kuhn saw it as marked by a giant forward steps and interspersed with plateaus. Kuhn believed that falsification could not be used when a major scientific revolution occurs. Popper saw "normal science" existing but only as an indicator to the "end of science (Hutcheon 5)." In response to Popper's claim of normal science, Kuhn understood how such science might inhibit the originality of scientific process but he noted that it "may also be the source of strength of science."

Hutcheon identifies how Popper, in an explanation of the evolution of science, emphasized the fluid movement of knowledge-building endeavors, as opposed to thy Kuhnian idea of periodic breakthroughs and plateaus. Narasimhan and Hutcheon argued that while Popper saw a theory's prevalence as a result of its ability to withstand falsification Kuhn factored in verifiability. Major differences between Popper and Kuhn was in the latter's belief in the role of normal science, the roles of sociological and psychological factors in the development of scientific knowledge, and how scientific changes happen. Kuhn saw growth as a result of "the piecemeal process by which these items have been added, singly and in combination, to the ever growing stockpile that constitutes scientific technique and knowledge (Kuhn 2)." Popper saw criticism as playing a huge role in the growth of knowledge as well as "problem solving and moving from one set of problems to another entirely different set (Narasimhan 4)."

Hutcheon's main argument was that Kuhn and Popper contributed insights that were more "complementary than contradictory." Hutcheon argues that Popper fills a very large void in Kuhn's arguments for the development of scientific knowledge; she saw falsifiability as the "crucial link missing from Kuhn's original theory of knowledge (Hutcheon 9)." On the other hand, she also adds how Kuhn's idea of "punctuated equilibrium" does not oppose Popper's theory but actually "refines" it. Narasimhan viewed Popper and Kuhn as situated on two extremes of a spectrum of inquiry. They occupy different ends of the debate on the "nature and development of scientific knowledge." Overall, and unlike Narasimhan, Hutcheon ends with this idea of Popper being victorious in identifying a concise method of making a true picture of reality. Narasimhan however, understands that regardless of whether or not Popper is right in this aspect, Kuhn's model of scientific change is taken as being closer to the realities of scientific practice and change.

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