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Short Paper 1

Sir Karl Popper initially set out to understand science. More precisely, he wanted to identify the distinguishing characteristics of scientific theories from other theories. Eventually, his goal was to find the answer to the question: Is there a criterion for the scientific character or status of a theory? (Popper 1).

Popper starts his search by trying to distinguish science from pseudoscience, or non-science. To Popper, this distinguishment was a problem that needed to be addressed first and foremost. He called this the "demarcation problem." Logical positivists at the time would see this as an attempt to discredit pseudoscience. However, Popper was not interested in determining the knowledge-value of pseudoscience, but solely saw the investigation as a means to differentiate pseudoscience from science. Pseudoscience was not meaningless; "they just weren't science" (PGS 58).

Popper's solution to the demarcation problem is simple, namely, falsification. His solution claims that "a hypothesis is scientific if and only if it has the potential to be refuted by some possible observation" (PGS 58). In extension, if there is no possible observable refutation to the theory, then it cannot be scientific. Furthermore, if a theory does not forbid any observations, it is deemed as unscientific

A possible problem to Popper's solution of falsification are cases where probabilities are extremely low for an observable event to occur. To mathematicians, the possible occurrence of

these observations would be seemingly insignificant which is enough to deem as impossible. However, insignificant, in Popper's perspective, is still possible; therefore, these would be observations that are not forbidden by a theory. A theory involving the insignificant probabilities of events are not scientific because it does not forbid these events from occurring (PGS 66).

Popper's philosophy of science is deeply rooted in the unity of science. Every science is part of the common endeavor to describe the world around us in the best way they can. However, Thomas Kuhn would argue that each science is independent of each other. They each exist within different paradigms which "[are] package[s] of claims about the world, methods for gathering and analyzing data, and habits of scientific thought and action" (PGS 77). It would be impossible to transfer information from one paradigm into another. Therefore, there cannot a unity of sciences that Popper claims.