

Proposal for the Independent Study in Philosophy

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Advisor: Dr. Bates

Topic Area: Epistemology (Philosophy of Science)

Major Questions:

- What is science?
- Does Popper's theory of demarcation stand up to Kuhn's incommensurability thesis?
- What is at stake for science in answering these questions?
- What is at stake for the rest of the world in answering these questions?
- How ought we to practice science?

Major Answers:

- Science consists in the formulation, testing, and tentative acceptance of falsifiable claims.
- The definition of science changes with scientific revolutions.

Relevant Coursework:

- Philosophy of Science – Winter Term '06 (Bogazici University)
- Philosophy Comps on: "What is Science?" – Winter Term '07

Relevant Papers:

- What is science? – Winter Term '06 (Bogazici University)
- Essay on Popper's problem of induction/demarcation. – Winter Term '06 (Bogazici University)
- Essay on scientific explanation/prediction. – Winter Term '06 (Bogazici University)
- Essay on Kuhnian thesis of incommensurability. – Winter Term '06 (Bogazici University)
- Essay on realism/anti-realism. – Winter Term '06 (Bogazici University)
- Essay on scientific revolutions. – Winter Term '06 (Bogazici University)
- Essay on the relativity of Kuhn. – Winter Term '06 (Bogazici University)

Tentative Title: Practical Demarcation: saving Popper from Kuhn.

Specific Question of Independent Study:

Karl Popper asserts falsifiability as the characteristic that 'demarcates' scientific claims from unscientific claims. This theory of demarcation is the most widely accepted of our time. However, Thomas Kuhn in his essay *On the Structure of Scientific Revolutions*, claims that the defining characteristics of science change with scientific revolutions and that any absolute definition of science is therefore inadequate.

There is presently a group of people who wish to redefine science in such way that it may include theories of an 'intelligent designer' of the universe; theories that are unacceptable in a paradigm that requires falsifiability to be a characteristic of scientific claims. These people often use Kuhn's incommensurability thesis to encourage the scientific community to accept this change.

The thrust of this paper will be to place Popper and Kuhn in philosophical dialogue and to see who's theory holds more water. In short: who is right, Popper or Kuhn? I will then continue to observe the practical consequences of the conclusion that I draw from this question and finally ask: regardless of who we accept as right, which theory should we accept in practice?

Preliminary Answer:

Though Kuhn provides a more compelling and accurate description of science than Popper, adherence to his paradigm would have very dangerous and negative implications on science. This will be illustrated by observing the current debate in intelligent design theory. We therefore ought to accept Kuhn in theory but adhere to Popper in practice.

Interest in the Question:

I am drawn to philosophy of science in general because I have never before seen a field of study on which philosophy has such a dramatic practical import; that is, the way in which scientists philosophically conceive their practice changes the way in which they work. I am interested in this area specifically because it is presently at the heart of a raging debate in the scientific community. The outcome of this debate could affect a scientific revolution that would profoundly change the practice of science.

Bibliography:

- K. Popper, "Science: conjectures and refutations", in *Conjectures and Refutations*, Harper and Torch books, 1963.
This is Popper's seminal work on the problem of demarcation. Here he develops the idea that no scientific claim can be adhered to as true, only as not-yet-disproved. This essay will be used primarily in the first section of my I.S.
- H. Brown, "Scientific revolutions", in *Perception, Theory and Commitment*, The University of Chicago Press, 1977.
This is a helpful commentary on Kuhn's *Structure of Scientific Revolutions*. This will be used in the second section of my I.S.
- T. Kuhn, "The nature and necessity of revolutions" and "Postscript 1969", in *The Structure of Scientific Revolutions, 2nd Ed.* The University of Chicago Press, 1970.
This is Kuhn's central work on scientific revolutions in which he develops the idea that the definition of science changes over time and that different scientific paradigms are incommensurable with one another. This will be used for the second section of my I.S.
- M. Curd and J.A. Cover, *Philosophy of Science: the central issues*, Norton, 1998.
Provides a birds-eye view of the central thinkers and issues in the philosophy of science. This book will be used for reference throughout the entire project.
- P. Kitcher, *Abusing Science: the case against creationism*, MIT, 1998 reprint.
This book underscores some of the practical implications of the debate that I will be focusing on and will provide most of the material for section three of my I.S.

D. Mayo, "Ducks, Rabbits and Normal Science: Recasting the Kuhn's-Eye View of Popper's Demarcation of Science", *The British Journal for the Philosophy of Science*, Vol. 47, No. 2. (Jun., 1996), pp. 271-290.

This is an essay that defends Popper against Kuhn that will be helpful in the conclusion section of my I.S.

Timetable:

- Week 1: Popper's problem of demarcation
- Week 2: Popper's problem of demarcation
- Week 3: Popper's problem of demarcation (Draft of section 1 due)
- Week 4: Kuhn's incommensurability thesis
- Week 5: Kuhn's incommensurability thesis
- Week 6: Kuhn's incommensurability thesis (Draft of section 2 due)
- Week 7: Practical applications of the debate (Kitcher)
- Week 8: Practical applications of the debate (Kitcher)
- Week 9: Practical applications of the debate (Kitcher)
- Week 10: Practical applications of the debate (Kitcher) (Draft of section 3 due)
- Week 11: Conclusion/Introduction
- Week 12: Conclusion/Introduction
- Week 13: Conclusion/Introduction (Complete draft due)
- Week 14: Finalize draft
- Week 15: Finalize draft
- Week 16: Final draft due