

PHIL-GA 1104, Fall 2016

PHILOSOPHY OF SCIENCE

CONFIRMATION THEORY AND THE SCIENTIFIC METHOD

Time & Place Second floor seminar room, Philosophy Building (5 Washington Place)
Tuesday 12 PM to 2 PM

Texts Readings will be posted at <http://www.nyu.edu/classes/strevens/AdvIntroSci16>. A user name and password are required (to be announced in class). You should also hunt down a copy of Thomas Kuhn's *The Structure of Scientific Revolutions*.

Content What makes science different from, and more successful at producing knowledge than, other forms of inquiry—such as philosophy? The traditional answer: science has a special “method”. We will look at some theories about the nature of this method, theories that turn on variously logical, semantic, and sociological aspects of the epistemological institution that is modern science (reading some of the positivists, Popper, Kuhn, some sociology of science). We then pick up the logical strand and go deeper, examining several theories of the way that evidence bears on scientific hypotheses—several “theories of confirmation”—culminating in several classes on the Bayesian theory of confirmation (reading Hempel, Glymour, and my own notes on Bayesianism). Throughout we continue to emphasize the question of science’s unprecedented success. At the end of the semester we will spend a little time on my own answer to that question.

Evaluation Your grade is based on two papers (50% each).

- The first paper should be 10 to 12 pages long. The second paper may be another essay of the same length on a different topic, or a 20 to 24 page extension and rewrite of the first. If you pursue this latter option, then, you will submit a 12 page paper and then a 24 page paper that is based on (and may incorporate all of) the shorter paper.
- The first paper is due on November 1st. The second paper is due on the last day of classes, which is December 16th.
- If you take an incomplete, all coursework must be submitted before the first day of classes of the spring semester 2017 (January 23rd), or you will receive a failing grade. No extensions: this is a fixed deadline.

Contact strevens@nyu.edu

Office hours by appointment

Michael Strevens ■ Room 603

READINGS

CONFIRMATION THEORY AND THE SCIENTIFIC METHOD

Sep 6 Introduction

Sep 13 Popper's Method

- ▷ Popper, K., *The Logic of Scientific Discovery*, §§1–6, 9–11, 19–22, 82–85
- ▷ Popper, K., "Back to the Presocratics" (NYU Proxy), pp. 18–24 (the rest is optional)

Sep 20 Hempel's Instantialism

- ▷ Hempel, C. G., "Studies in the logic of confirmation" (NYU Proxy) (comes in two parts; part two is at this link)

Sep 27 Theoretical Instantialism

- ▷ Glymour, C., "Relevant evidence" (NYU Proxy)
- ▷ Good, I. J., "The white shoe is a red herring" (NYU Proxy)

Oct 4 To be determined

Oct 11 Kuhn's *Structure*: Normal Science

- ▷ Kuhn, T. S., *The Structure of Scientific Revolutions*, chapters 1 through 8

Oct 18 Kuhn's *Structure*: Revolutions

- ▷ Kuhn, *Structure*, chapters 9 through 13 and postscript (no need to dwell on chapter 10, however)

Oct 25 Some Sociological *Verismo*

- ▷ Earman, J. and C. Glymour, "Relativity and eclipses" (NYU Proxy)
- ▷ Collins, H. M., "The seven sexes" (NYU Proxy)

Nov 1 To be determined

- First paper due

◁ Due date

Nov 8 Bayesian Theory of Confirmation: Mechanics

- ▷ Strevens, M., "Notes on Bayesian confirmation theory", §§1–6

- Nov 15 Bayesian Theory of Confirmation: Induction & Auxiliaries
▷ Strevens, M., "Notes on Bayesian confirmation theory", §§7, 10
- Nov 22 Bayesian Theory of Confirmation: Subjectivity & Convergence
▷ Strevens, M., "Notes on Bayesian confirmation theory", §9
- Nov 29 What's Special about Science?
▷ Strevens, M., "What is empirical testing?"
- Dec 6 What's Special about Science?
■ The secret of science's success revealed

Papers are due on November 1st and December 16th.

REFERENCES

CONFIRMATION THEORY AND THE SCIENTIFIC METHOD

- Collins, H. M. (1975). The seven sexes: A study in the sociology of a phenomenon, or the replication of experiments in physics. *Sociology* 9:205–224.
- Earman, J. and C. Glymour. (1980). Relativity and eclipses: The British eclipse expeditions of 1919 and their predecessors. *Historical Studies in the Physical Sciences* 11:49–85.
- Glymour, C. (1972). Relevant evidence. *Journal of Philosophy* 72:403–426.
- Good, I. J. (1967). The white shoe is a red herring. *British Journal for the Philosophy of Science* 17:322.
- Hempel, C. G. (1945). Studies in the logic of confirmation. *Mind* 54:1–26, 97–121.
- Kuhn, T. S. (2012). *The Structure of Scientific Revolutions*. Fourth edition. University of Chicago Press, Chicago.
- Popper, K. (1958). Back to the Presocratics. *Proceedings of the Aristotelian Society* 59:1–24.
- . (1959). *The Logic of Scientific Discovery*. Hutchinson, London. English translation.
- Strevens, M. (2012). Notes on Bayesian confirmation theory. Book-length lecture notes. Published online at <http://www.strevens.org/bct/>.
- . (manuscript). What is empirical testing?