EVIDENCE

Time and Place: Tuesdays 16:15-17:45, 23.21/U1.64
Instructor: Dr. Ioannis Votsis
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Office hours (Room Geb. 23.21/04.86): Wednesdays 11:00-12:00

It is hard to deny that evidence plays a critical role in scientific as well as in everyday deliberations. In this seminar we will attempt to understand this role by examining the notion of evidence and its associated activities. With this aim in mind several descriptive and normative questions will be raised: How is the concept of evidence used in everyday discourse and how is it used in scientific discourse? What ought to count as evidence? How are the concepts of sensory experience, empirical belief, data and evidence related? Under what circumstances does evidence underdetermine the choice between competing theories? Is evidence a theory-dependent notion? If so, can we still reasonably maintain its function as a neutral adjudicator? Is evidence-seeking an indispensable value for a successful knowledge system? What is the best way to quantify the notion of evidence? When can an old piece of evidence lend credence to a new theory? Does evidence of a new type of phenomenon support a theory more strongly than evidence of an established type?

Useful Book:
Achinstein, P. (2001) *The Book of Evidence*, Oxford: Oxford University Press.

Coursework:
- One presentation (about 20 minutes) on one of the main readings. [3 credits]
- One essay (about 2,500 words), **deadline 26/01/10**. [3 credits]

NB: Presentations will be assigned on the second week. Suggested essay topics will be distributed in December.

WEEK 1: Introduction

WEEK 2: An Overview

Main Reading:
Kelly, T. (2006) 'Evidence', *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), URL = http://www.seop.leeds.ac.uk/entries/evidence/

Further Reading:
Achinstein, P. (2001) *The Book of Evidence*, Oxford: Oxford University Press, pp. 13-44.
Glymour, C. (1980) *Theory and Evidence*, Princeton: Princeton University Press.
Salmon, M. et al. (1992) *Introduction to the Philosophy of Science* , ch.2, Englewood Cliffs, NJ: Prentice Hall.

WEEK 3: The Seat of Evidence – Observation Statements

Main Reading:
Quine, W.V. (1993) *From Stimulus to Science*, ch. 2, Cambridge (MA): Harvard University Press, pp. 15-26.

Further Reading:

Putnam, H. (1962) 'What Theories Are Not', *Logic, Methodology and Philosophy of Science*, E. Nagel et al. (eds.), Stanford University Press, Stanford, pp. 240-251.

Quine, W.V. (1993) 'In Praise of Observation Sentences', *Journal of Philosophy*, vol. 90(3): 107-116.

Suppe, F. (1972) 'What's Wrong with the Received View on the Structure of Scientific Theories?', *Philosophy of Science*, vol. 39(1): 1-19.

WEEK 4: The Seat of Evidence – Data

Main Reading:

Woodward, J. (forthcoming) 'Data and Phenomena: A Restatement and Defense', *Synthese*, DOI 10.1007/s11229-009-9618-5.

Further Reading:

Bogen, J. and J. Woodward (1988) 'Saving the phenomena', *The Philosophical Review* 97(3): 303–352.

Bogen, J. &.Woodward, J. (2003) 'Evading the IRS', Poznan Studies in the Philosophy of the Sciences and the Humanities. in R. Jones & N. Cartwright (eds.), *Idealization XII*: *Correcting the Model*, Amsterdam: Rodopi, pp. 233-268.

Votsis, I. (forthcoming) 'Data Meet Theories: Up Close and Inferentially Personal', *Synthese*, DOI 10.1007/s11229-009-9614-9.

WEEK 5: The Problem of Theory-Ladenness

Main Reading:

Brewer, W.F. and B.L. Lambert (2001) 'The Theory-Ladenness of Observation and the Theory-Ladenness of the Rest of the Scientific Process', *Philosophy of Science*, 68(3): S176-S186.

Further Reading:

Churchland, P.M. (1988) 'Perceptual Plasticity and Theoretical Neutrality: A Reply to Jerry Fodor', *Philosophy of Science*, vol. 55(2): 167-187.

Fodor, J. (1984) 'Observation Reconsidered', *Philosophy of Science*, vol. 51(1): 23-43.

Kosso, P. (1992) *Reading the Book of Nature*, Cambridge: Cambridge University Press, ch. 6.

WEEK 6: The Problem of Underdetermination

Main Reading:

Norton, J. (2008) 'Must Evidence Underdetermine Theory?', in *The Challenge of the Social and the Pressure of Practice*: *Science and Values Revisited*, M. Carrier, D. Howard, and J. Kourany (eds.), Pittsburgh: University of Pittsburgh Press, 17–44.

Further Reading:

Laudan, L. and Leplin, J. (1991) 'Empirical Equivalence and Underdetermination', *Journal of Philosophy*, vol. 88: 449–72.

Stanford, K. (2006) *Exceeding Our Grasp: Science, History, and the Problem of Unconceived Alternatives*, Oxford: Oxford University Press.
Worrall, J. (forthcoming) 'Underdetermination, Realism and Empirical Equivalence', *Synthese*, DOI 10.1007/s11229-009-9599-4.

WEEK 7: Evidence and Knowledge

Main Reading:
Williamson, T. (2000) *Knowledge and its Limits*, ch.9, Oxford: Oxford University Press, pp. 184-208.

Further Reading:
Conee, E. and Feldman, R. (2004) *Evidentialism*: *Essays in Epistemology*, Oxford: Oxford University Press.
Jackson, F. (2002) 'Critical Notice of Knowledge and its Limits', *Australasian Journal of Philosophy*, vol. 80(4): 516–521.
Stanley, J. (2005) *Knowledge and Practical Interests*, Oxford, Oxford University Press.

WEEK 8: Qualitative Accounts of Confirmation

Main Reading:
Hempel, C.G. (1962) 'Criteria of Confirmation and Acceptability', repr. in M. Curd and J.A. Cover (eds.) Philosophy of Science: The Central Issues, New York: W.V. Norton & Company, 1998, pp. 445-459.

Further Reading:
Carnap, R. (1950) *Logical Foundations of Probability*, Chicago: University of Chicago Press.
Duhem, P. ([1914] 1991) The Aim and Structure of Physical Theory, Princeton (NJ): Princeton University Press.
Popper, K. (1963) *Conjectures and Refutations*: *The Growth of ScientificKnowledge*, London: Routledge and Keagan Paul.

WEEK 9: Bayesianism

Main Reading:
Talbott, W. (2008) 'Bayesian Epistemology', *The Stanford Encyclopedia of Philosophy*, Edward N. Zalta (ed.), URL = http://plato.stanford.edu/entries/epistemology-bayesian/

Further Reading:
Bovens, L. and Hartmann, S. (2003) *Bayesian Epistemology*, Oxford: Oxford University Press.
Earman, J. (1992) *Bayes or Bust*? *A Critical Examination of Bayesian Confirmation Theory*, Cambridge, MA: MIT Press.
Howson, C. & Urbach, P. (1989) *Scientific Reasoning*: *The Bayesian Approach*, LaSalle, Ill.: Open Court.

WEEK 10: The Problem of Old Evidence

Main Reading:

Howson, C. (1991) 'The "Old Evidence" Problem', *British Journal for the Philosophy of Science*, vol. 42: 547-555.

Further Reading:

Barnes, E.C. (1999) 'The Quantitative Problem of Old Evidence', *British Journal for the Philosophy of Science*, vol. 50: 249-264.

Chihara, C.S. (1987) 'Some Problems for Bayesian Confirmation Theory', *British Journal for the Philosophy of Science*, vol. 38: 551-60.

Eells, E. & B. Fitelson (2000) 'Measuring Confirmation and Evidence', *Journal of Philosophy*, vol. 97(12): 663-672.

WEEK 11: Novel Predictions

Main Reading:

Hudson, R.G. (2007) 'What's Really at Issue with Novel Predictions?', *Synthese*, vol 155(1): 1-20.

Further Reading:

Brush, S.G. (2007) Predictivism and the Periodic Table, *Studies In History and Philosophy of Science Part A*, vol. 38(1): 256-259.

Mayo, D. (1991) 'Novel Evidence and Severe Tests', *Philosophy of Science*, vol. 58: 523-552.

Worrall, J. (2002) 'New Evidence for Old', in P. Gärdenfors, J. Wolenski and K. Kijania-Placek (eds.), *In the Scope of Logic, Methodology and Philosophy of Science*, vol. 1: pp. 191–209.

WEEK 12: Evidence in Biology

Main Reading:

Kitcher, P. (1982) *Abusing Science: The Case Against Creationism*, ch. 2, Cambridge (MA): MIT Press, pp. 30-54.

Further Reading:

Carroll, S. B. (2006) *The Making of the Fittest*: *DNA and the Ultimate Forensic Record of Evolution*, New York: W. W. Norton.

Ruse, M. (2008) 'Darwinian Evolutionary Theory: Its Structure and its Mechanism', in M. Ruse (ed.) *The Oxford Handbook of Philosophy of Biology*, Oxford: Oxford University Press.

Sober, E. (2007) 'What Is Wrong with Intelligent Design?', *Quarterly Review of Biology*, vol. 82: 3-8.

WEEK 13: Evidence in Law

Main Reading:

Murphy, P. (2003) *Evidence, Proof, and Facts: A Book of Sources*, New York: Oxford University Press, pp. 1-22.

Further Reading:

Allen, R.J. and B. Leiter (2001) 'Naturalized Epistemology and the Law of Evidence', *Virginia Law Review*, vol. 87: 1491-1550.

Lagnado, D. A. and N. Harvey (2008) 'The Impact of Discredited Evidence', *Psychonomic Bulletin and Review*, vol. 15(6): 1166-1173.
Laudan, L. (2008) 'The Elementary Epistemic Arithmetic of Criminal Justice', *Episteme*, vol. 5(3): 282-94.

WEEK 14: Evidence in Medicine

Main Reading:

Worrall, J. (2007) 'Evidence in Medicine and Evidence-Based Medicine', *Philosophy Compass*, vol. 2(6): 981–1022.

Further Reading:

Grossman, J. and F.J. Mackenzie (2005) 'The Randomized Controlled Trial. Gold Standard or Merely Standard?', *Perspectives in Biology and Medicine*, vol. 48(4): 516-534.
Sackett, D.L. et. al. (1996) 'Evidence Based Medicine: What it is and What it isn't', *British Medical Journal*, vol. 312: 71-72.
Worrall, J. (2002) 'What Evidence in Evidence-Based Medicine?', *Philosophy of Science*, vol. 69(3): 316-30.

WEEK 15: Uncertain Reasoning

Main Reading:

Stainforth, D.A et al. (2007) 'Confidence, Uncertainty and Decision-Support Relevance in Climate Predictions', *Philosophical Transactions of the Royal Society A* , vol. 365: 2145–2161.

Further Reading:

Douven, I. and T. Williamson (2006) 'Generalizing the Lottery Paradox', *British Journal for the Philosophy of Science*, vol. 57: 755-779.
Hansson, S. O . (1996) 'Decision-Making Under Great Uncertainty', *Philosophy of the Social Sciences*, vol. 26:369-386.
Kyburg, H. E. (1990) *Knowledge Representation and Defeasible Reasoning*, Dordrecht: Kluwer.

WEEK 16: Science without Evidence?

Main Reading:

Feyerabend, P. K. (1969) 'Science Without Experience', Journal of Philosophy, vol. 66: 791-94.

Further Reading:

Brown, H. I. (1995) 'Empirical Testing + 3 Major Views of Observation-Theory Relation', *Inquiry*, vol. 38(4): 353-399.
Eddington, A. (1938) *The Philosophy of Physical Science*, Cambridge: Cambridge University Press.
Votsis, I. (draft) 'Logic as Ultra-Physics'.