Philosophy of Science: Essay One

Requirements

You are to submit one 6–8 page research paper on Wednesday 24 October, addressing one and only one of the questions listed below. A hard copy of the paper must be submitted in class.

Guidelines

Essay guidelines are available here: http://goo.gl/jrx25

Questions

- Explain and evaluate the Deductive-Nomological theory of scientific explanation defended by Hempel (1965). Discuss at least one of the following problems with the theory:
  - Explanatory asymmetry.
  - Explanatory relevance.
- Woodward (2003) argues that many theories of scientific explanation, including the Deductive-Nomological theory defended by Hempel (1965), are committed to a thesis he calls "the hidden structure strategy". Explain the Deductive-Nomological theory, explain why it is committed to the hidden structure strategy, and explain and evaluate Woodward's argument against the hidden structure strategy.
- Lewis (1986) defends a theory of scientific explanation according to which to explain is to provide information about causal history. Explain and evaluate this theory, considering at least one of the following questions:
  - Does more information about causal history always entail better explanation?
  - Are there non-causal explanations?
- Sober (1983) argues that equilibrium explanation provides a counterexample to causal theories of explanation. Explain and evaluate his argument, considering the following questions:

  - Are equilibrium explanations non-causal?
  - Do equilibrium explanations show that Lewis (1986) is wrong to claim that, other things being equal, more causal information always entails better explanation?

- Woodward and Hitchcock (Woodward and Hitchcock 2003a,b) develop a counterfactual theory of explanation that they claim improves upon the Deductive-Nomological theory in several respects. Explain and evaluate their theory, comparing it with the Deductive-Nomological theory in at least one of the following respects:

  - Explanatory asymmetry.
  - Explanatory relevance.
  - Explanatory depth.

References

Carl Gustav Hempel. 1965. "Aspects of Scientific Explanation", in *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*, Free Press, New York, pp. 331–496.

David Lewis. 1986. "Causal Explanation", in *Philosophical Papers*. Vol. II, Oxford University Press, Oxford, pp. 214–240. URL: http://dx.doi.org/10.1093/0195036468.003.0007.

Elliott Sober. 1983. "Equilibrium Explanation", in *Philosophical Studies*, Vol. 43, No. 2, Mar. 1983, pp. 201–210. URL: http://dx.doi.org/10.1007/BF00372383.

James Woodward. 2003. "Causal Explanation: Background and Criticism", in *Making Things Happen: A Theory of Causal Explanation*, Oxford University Press, New York, pp. 152–186. URL: http://dx.doi.org/10.1093/0195155270.003.0004.

James Woodward and Christopher Hitchcock. 2003a. "Explanatory Generalizations, Part I: A Counterfactual Account", in *Noûs*, Vol. 37, No. 1, Mar. 2003, pp. 1–24. URL: http://dx.doi.org/10.1111/1468-0068.00426.

————. 2003b. "Explanatory Generalizations, Part II: Plumbing Explanatory Depth", in *Noûs*, Vol. 37, No. 2, June 2003, pp. 181–199. URL: http://dx.doi.org/10.1111/1468-0068.00435.