

Philosophy 920 – Proseminar in Philosophy of Biology – Spring, 2012

Elliott Sober

Readings: We will read most of my book *Did Darwin write the Origin Backwards?* (Prometheus Books, 2011) and three chapters from my book with David Wilson, *Unto Others* (Harvard UP, 1998). Both are available at University Bookstore. The other readings will come from articles and book chapters that I'll mostly make available as pdf's.

Office hours: Wednesdays 1:15-3:30, or by appointment.

Course requirements: You should attend all seminar meetings and participate in seminar discussions. During the first half of the semester, you should write 4 short papers (2-3 pages, double spaced). These are due every other week by Monday at noon; they should be emailed to me. In each paper, you should describe and criticize an argument that is made in one of the readings assigned for the seminar meeting that will occur the following day. The schedule for handing in these short papers will be worked out at the first meeting of the seminar; nothing is due at the seminar's first meeting. You also should write a long paper (15-20 pages), due at the end of the semester, on a topic that you consult with me about by April 11.

Week 1: What is Darwin's theory?

Philip Kitcher (1985): "Darwin's Achievement." Reprinted in Kitcher's *In Mendel's Mirror*. Oxford UP, 2005.
Sober, DDWOB? Ch. 1, Ch. 5.1.

Weeks 2-3: Probabilities in Evolutionary Theory

Alan Hajek (2011): "Interpretations of Probability." *Stanford Encyclopedia of Philosophy*.
Susan Mills and John Beatty (1979): "The Propensity Interpretation of Fitness." *Philosophy of Science* 46: 263-286.
John Beatty and Susan Finsen, (1989): "Rethinking the propensity interpretation -- a peek inside Pandora's box." In M. Ruse (ed.), *What the Philosophy of Biology Is*, pp. 17-30.
Sober (2001): "Two Faces of Fitness." In R. Singh, D. Paul, C. Krimbas, and J. Beatty (eds.), *Thinking about Evolution: Historical, Philosophical, and Political Perspectives*. Cambridge University Press, pp.309-321.

A. Rosenberg and F. Bouchard (2008): "Fitness." *Stanford Encyclopedia of Philosophy*.
R. Brandon and S. Carson (1996): "The Indeterministic Character of Evolutionary Theory -- No 'No Hidden Variables Proof' but no Room for Determinism Either." *Philosophy of Science* 63: 315-337.
Sober, DDWOB? 4.3, 5.3.

Weeks 4-5: Natural Selection, Drift, Causality

Christopher Hitchcock (2010): "Probabilistic Causality." *Stanford Encyclopedia of Philosophy*, Sections 1-2.

- M. J. S. Hodge (1987): "Natural Selection as a Causal, Empirical, and Probabilistic Theory," in *The Probabilistic Revolution*, L. Kruger, G. Gigerenzer, and M. Morgan (eds.), MIT Press, vol. 2, pp. 233-70.
- Denis Walsh (2000): "Chasing Shadows – Natural Selection and Adaptation." *Studies in the History and Philosophy of Biology and the Biomedical Sciences* 31: 135-153.
- Christopher Stephens (2004): "Selection, Drift, and the 'Forces' of Evolution." *Philosophy of Science* 71: 550-570.
- Larry Shapiro and Elliott Sober (2007): "Epiphenomenalism – the Do's and the Don'ts." In G. Wolters and P. Machamer (eds), *Studies in Causality: Historical and Contemporary*. University of Pittsburgh Press, pp. 235-264.
- Roberta Millstein (2002): "Are Random Drift and Natural Selection Conceptually Distinct?" *Biology and Philosophy* 171: 33-53.
- Ken Reisman and Patrick Forber (2005): "Manipulation and the Causes of Evolution." *Philosophy of Science* 72: 1115-1125.

Weeks 6-7: Are There Laws of Evolution?

- John Beatty (1995): "The Evolutionary Contingency Thesis." In G. Wolters and J. Lennox (eds.), *Concepts, Theories, and Rationality in the Biological Sciences*, U of Pittsburgh Press, 45-81.
- Elliott Sober (1997): "Two Outbreaks of Lawlessness in Recent Philosophy of Biology." *Philosophy of Science* 64: S458-S467.
- Sandra Mitchell (1996): "Pragmatic Laws" *Philosophy of Science* 64: S468-S479
- Kenneth Waters (1998): "Causal Regularities in the Biological World of Contingent Distributions". *Biology and Philosophy* 13: 5-36
- Jim Woodward (2001): "Law and Explanation in Biology: Invariance is the kind of Stability that Matters" *Philosophy of Science* 68: 1-20.
- Sober (2011): "A Priori Causal Models of Natural Selection." *Australasian Journal of Philosophy* 89: 1-19, with a reply by Marc Lange and Alexander Rosenberg.

Week 8: What does Selection Explain?

- Sober (1984): *Nature of Selection*, pp.147-155.
- Karen Neander (1988): "What does Natural Selection Explain? Correction to Sober." *Philosophy of Science*, 55: 422-426.
- Patrick Forber (2005): "On the Explanatory Roles of Natural Selection." *Biology and Philosophy* 20: 329-342.
- Casey Helgeson (2011): "Can Natural Selection Explain Why You Have Those Traits? Recalibrating the Debate."

Week 9: Reductionism

- Jerry Fodor (1974): "Special Sciences," *Synthese* 28: 77-115.
- Hilary Putnam (1973): "Philosophy and our Mental Life." In *Mind, Language, and Reality*. Cambridge UP, pp. 291-303.
- Jackson and Pettit (1992): "In Defense of Explanatory Ecumenicism." *Economics and Philosophy* 8:1-21.

Sober (1999): “The Multiple Realizability Argument against Reductionism.” *Philosophy of Science* 66: 542-564.

Week 10: Adaptationism

Gould and Lewontin (1979): “The Spandrels of San Marco – a Critique of the Adaptationist Programme.” *Proceedings of the Royal Society of London B* 205: 581-598.

G. Parker and J Maynard Smith (1990), “Optimality theory in Evolutionary Biology.” *Nature* 348: 27-33.

W. Mitchell and T. Valone (1990): “The Optimization Research Program: Studying Adaptations by their Function.” *Quarterly Review of Biology* 65: 43-52.

Steve Orzack and Patrick Forber (2011): “Adaptationism.” *Stanford Encyclopedia of Philosophy*.

Weeks 11-12: Units of Selection

Richard Lewontin (1970): “The Units of Selection.” *Annual Review of Ecology and Systematics* 1: 1-18.

Sober and D.S. Wilson (1998): *Unto Others*, chs. 1-3.

Sober, *DDWOB?* Chapter 2.

Elisabeth Lloyd (2005): “Why the Gene Will Not Return.” *Philosophy of Science* 72: 287–310.

Kenneth Waters (2005): “Why Genic and Multilevel Selection Theories Are Here to Stay.” *Philosophy of Science* 72: 311–333.

Sober, *DDWOB?* Chapter 5.2.

Weeks 13-14: Naturalism

Alvin Plantinga (2011): “The Evolutionary Argument against Naturalism.” In *Where the Conflict Really Lies*. Oxford UP.

Branden Fitelson and Sober (1998): “Plantinga’s Probability Arguments Against Evolutionary Naturalism.” *Pacific Philosophical Quarterly*, 1998, 79: 115-129

Alvin Plantinga (2003): “Probability and Defeaters.” *Pacific Philosophical Quarterly* 84: 291– 298.

Thomas Nagel (2012): *Mind and Cosmos*, Oxford UP.

Sober, *DDWOB?* Chapter 4.

Week 15: Wrap-Up