

G83.1177, Fall 2009

STRUCTURE HIGH LEVEL SCIENCES

Place Second floor seminar room, Philosophy Building (5 Washington Place)

Texts Some readings can be found by following the links embedded in the reading list; the remainder will be posted online at www.nyu.edu/classes/strevens/SpecSciF09. A user name and password are required (to be announced in class).

Content This seminar will ask questions about laws, causality, explanation, ceteris paribus hedges, reduction, idealization, and probability in the high level, or special, sciences (biology, psychology, economics, sociology – perhaps everything but fundamental physics).

We will aim to survey a wide range of opinion, but the focus will be on answers that come in large part from my own recent work on the topic.

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 3rd. The second paper is due on the last day of term, which is December 15th.
- In the event of your taking an incomplete, all coursework must be submitted before the first day of classes of the spring semester, or you will receive a failing grade. No extensions: this is a fixed deadline.

Contact Office hours are Wednesdays 11:00 to 12:30 and by appointment.

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READINGS HIGH LEVEL SCIENCES

- Sep 8 What makes the high level sciences special?
- Sep 15 Special science laws and regularities
- ▷ Cohen, J. and C. Callender, "A better best system account of lawhood"
 - ▷ Strevens, M., "Physically contingent laws and counterfactual support"
- Sep 22 Explanation, causality, mechanism
- ▷ Strevens, M., "Scientific explanation"
 - ▷ Strevens, M., "The causal and unification accounts of explanation unified - causally"
- Sep 29 "Ceteris paribus" in the special sciences
- ▷ Lange, M., "Who's afraid of ceteris paribus laws? or: How I learned to stop worrying and love them"
 - ▷ Strevens, M., "Ceteris paribus hedges: Causal voodoo that works"
- Oct 6 Basing patterns and explanation
- ▷ Waters, C. K., "Causal regularities in the biological world of contingent distributions"
 - ▷ Strevens, M., *Depth: An Account of Scientific Explanation*, §§7.1-7.3
- Oct 13 Basing patterns and reduction
- ▷ Fazekas, P., "Reconsidering the role of bridge laws in inter-theoretical relations"
 - ▷ Strevens, M., "The explanatory role of irreducible properties"
- Oct 20 Multiple realizability and functionalism
- ▷ Fodor, J. A., "Special sciences"
 - ▷ Block, N., "Anti-reductionism slaps back"
- Oct 27 Multiple realizability, functionalism, and explanation
- ▷ Strevens, M., *Depth: An Account of Scientific Explanation*, §§5.3, 5.4
 - ▷ Jackson, F. and P. Pettit, "Program explanation: A general perspective"
- Nov 3 Multiple realizability, functionalism, and reduction
- ▷ Kim, J., "Reduction and reductive explanation: Is one possible without the other?"

Nov 10 Idealization

- ▷ Cartwright, N., "Truth doesn't explain much"
- ▷ Strevens, M., "Why explanations lie: Idealization in explanation"

Nov 17 Special probability

- ▷ Loewer, B., "Determinism and chance"
- ▷ Strevens, M., "Deterministic probability"

Nov 24 Causal discovery

- ▷ Reading TBD

Dec 1 Why is there anything but physics?

- ▷ Loewer, B., "Why is there anything except physics?"
- ▷ Loewer, B., "Why there is anything except physics"
- ▷ Strevens, M., "How are the sciences of complex systems possible?", §§1–4

Dec 8 Why does counterfactual support matter? (And other questions . . .)

REFERENCES HIGH LEVEL SCIENCES

- Block, N. (1997). Anti-reductionism slaps back. In J. E. Tomberlin (ed.), *Mind, Causation, World*, volume 11 of *Philosophical Perspectives*, pp. 107–133. Blackwell, Oxford.
- Cartwright, N. (1980). Truth doesn't explain much. *American Philosophical Quarterly* 17. Reprinted in *How the Laws of Physics Lie*. Oxford University Press, Oxford.
- Cohen, J. and C. Callender. (2009). A better best system account of lawhood. *Philosophical Studies* 145:1–34.
- Fazekas, P. (2009). Reconsidering the role of bridge laws in inter-theoretical relations. *Erkenntnis* online.
- Fodor, J. A. (1974). Special sciences. *Synthese* 28:97–115.
- Hohwy, J. and J. Kallestrup (eds.). (2008). *Being Reduced: New Essays on Reduction, Explanation, and Causation*. Oxford University Press, Oxford.
- Jackson, F. and P. Pettit. (1990). Program explanation: A general perspective. *Analysis* 50:107–117.
- Kim, J. (2008). Reduction and reductive explanation: Is one possible without the other? In Hohwy and Kallestrup (2008).
- Lange, M. (2002). Who's afraid of ceteris paribus laws? or: How I learned to stop worrying and love them. *Erkenntnis* 57:407–423.
- Loewer, B. (2001). Determinism and chance. *Studies in History and Philosophy of Modern Physics* 32:609–620.
- . (2008). Why there is anything except physics. In Hohwy and Kallestrup (2008), pp. 149–163.
- . (2009). Why is there anything except physics? *Synthese* 170:217–233.
- Strevens, M. (2004a). The causal and unification accounts of explanation unified – causally. *Noûs* 38:154–176.
- . (2004b). Why explanations lie: Idealization in explanation. Text of talk.

- . (2005). How are the sciences of complex systems possible? *Philosophy of Science* 72:531–556.
- . (2006). Scientific explanation. In D. M. Borchert (ed.), *Encyclopedia of Philosophy*, second edition. Macmillan Reference USA, Detroit.
- . (2008). Physically contingent laws and counterfactual support. *Philosopher's Imprint* 8(8).
- . (2009). *Depth: An Account of Scientific Explanation*. Harvard University Press, Cambridge, MA.
- . (Manuscript a). Ceteris paribus hedges: Causal voodoo that works.
- . (Manuscript b). The explanatory role of irreducible properties.
- Waters, C. K. (1998). Causal regularities in the biological world of contingent distributions. *Biology and Philosophy* 13:5–36.