

Curriculum Vitae

Michael Strevens

Philosophy Department
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Interests

AOS ◊ Philosophy of science, philosophical applications of cognitive science
AOC ◊ Philosophy of physics, philosophy of biology, formal epistemology

Employment

Professor of Philosophy, New York University, 2008 onward
Associate Professor of Philosophy, New York University, 2004–2008
Assistant Professor of Philosophy, Stanford University, 1997–2004
Assistant Professor of Philosophy, Iowa State University, 1996–1997

Education

PhD ◊ Philosophy ◊ Rutgers University, May 1996
MA ◊ Philosophy ◊ University of Auckland, May 1991
BA ◊ Mathematics ◊ University of Auckland, May 1988
BSc ◊ Computer Science ◊ University of Auckland, May 1986

Books

Thinking Off Your Feet: How Empirical Psychology Vindicates Armchair Philosophy. Harvard University Press, Cambridge, MA. 2019.

Tychomancy: Inferring Probability from Causal Structure. Harvard University Press, Cambridge, MA. 2013.

Depth: An Account of Scientific Explanation. Harvard University Press, Cambridge, MA. 2008.

Bigger than Chaos: Understanding Complexity through Probability. Harvard University Press, Cambridge, MA. 2003.

Articles

The explanatory role of aggregative properties. In C. K. Waters and J. Woodward (eds.), *Causation and Explanation in Biology*, volume 23 of *Minnesota Studies in the Philosophy of Science*. University of Minnesota Press, Minneapolis. Forthcoming.

Dynamic probability and the problem of initial conditions. *Synthese*, 199:14 617–14 639. 2021.

Permissible idealizations for the purpose of prediction. *Studies in History and Philosophy of Science*, 85:92–100. 2021.

The structure of asymptotic idealization. *Synthese*, 196:1713–1731. 2019.

The mathematical route to causal understanding. In A. Reutlinger and J. Saatsi (eds.), *Explanation Beyond Causation*. Oxford University Press, Oxford. 2018.

The whole story: Convergent evolution and multiple realizability. In D. Kaplan (ed.), *Explanation and Integration in Mind and Brain Science*. Oxford University Press, Oxford. 2017.

Scientific sharing: Communism and the social contract. In T. Boyer-Kassem, C. Mayo-Wilson, and M. Weisberg (eds.), *Scientific Collaboration and Collective Knowledge*. Oxford University Press, Oxford. 2017.

Dappled science in a unified world. In H.-K. Chao and J. Reiss (eds.), *Philosophy of Science in Practice: Nancy Cartwright and the Nature of Scientific Reasoning*. Springer-Verlag, Heidelberg. 2017.

- Ontology, complexity, and compositionality. In M. Slater and Z. Yudell (eds.), *Essays on Metaphysics and the Philosophy of Science*. Oxford University Press, Oxford. 2017.
- How idealizations provide understanding. In S. R. Grimm, C. Baumberger, and S. Ammon (eds.), *Explaining Understanding: New Perspectives from Epistemology and Philosophy of Science*. Routledge, New York. 2017.
- The reference class problem in evolutionary biology: Distinguishing selection from drift. In C. Pence and G. Ramsey (eds.), *Chance in Evolution*. University of Chicago Press, Chicago. 2016.
- Special-science autonomy and the division of labor. In M. Couch and J. Pfeifer (eds.), *The Philosophy of Philip Kitcher*. Oxford University Press, Oxford. 2016.
- Stochastic independence and causal connection. *Erkenntnis*, 80:605–627. 2015.
- High-level exceptions explained. *Erkenntnis*, 79:1819–1832. 2014.
- Bayesianism versus confirmation. In G. Guo and C. Liu (eds.), *Scientific Explanation and Methodology of Science*. World Scientific, Singapore. 2014.
- Causality reunified. *Erkenntnis*, 78:299–320. 2013.
- No understanding without explanation. *Studies in History and Philosophy of Science*, 44:510–515. 2013.
- Herding and the quest for credit. *Journal of Economic Methodology*, 20:19–34. 2013.
- Ceteris paribus hedges: Causal voodoo that works. *Journal of Philosophy*, 109:652–675. 2012.
- The explanatory role of irreducible properties. *Noûs*, 46:754–780. 2012.
- Theoretical terms without analytic truths. *Philosophical Studies*, 160:167–190. 2012.
- Probability out of determinism. In C. Beisbart and S. Hartmann (eds.), *Probabilities in Physics*, pp. 339–364. Oxford University Press, Oxford. 2011.
- Economic approaches to understanding scientific norms. *Episteme*, 8:184–200. 2011.

- Reconsidering authority: Scientific expertise, bounded rationality, and epistemic backtracking. *Oxford Studies in Epistemology*, 3:294–330. 2010.
- Objective evidence and absence. *Philosophical Studies*, 143:91–100. 2009.
- Physically contingent laws and counterfactual support. *Philosophers' Imprint*, 8.8:1–20. 2008.
- Why represent causal relations? In A. Gopnik and L. Schulz (eds.), *Causal Learning: Psychology, Philosophy, Computation*, pp. 245–260. Oxford University Press, New York. 2007.
- Mackie remixed. In J. K. Campbell, M. O'Rourke, and H. S. Silverstein (eds.), *Causation and Explanation*, volume 4 of *Topics in Contemporary Philosophy*. MIT Press, Cambridge, MA. 2007.
- The role of the Matthew Effect in science. *Studies in History and Philosophy of Science*, 37:159–170. 2006.
- How are the sciences of complex systems possible? *Philosophy of Science*, 72:531–556. 2005.
- Bayesian confirmation theory: Inductive logic or mere inductive framework? *Synthese*, 141:365–379. 2004.
- The causal and unification approaches to explanation unified—causally. *Noûs*, 38:154–176. 2004.
- Against Lewis's new theory of causation. *Pacific Philosophical Quarterly*, 84:398–412. 2003.
- The role of the priority rule in science. *Journal of Philosophy*, 100:55–79. 2003.
- The Bayesian treatment of auxiliary hypotheses. *British Journal for the Philosophy of Science*, 52:515–538. 2001.
- Do large probabilities explain better? *Philosophy of Science*, 67:366–390. 2000.
- The essentialist aspect of naive theories. *Cognition*, 74:149–175. 2000.
- Objective probability as a guide to the world. *Philosophical Studies*, 95:243–275. 1999.
- Inferring probabilities from symmetries. *Noûs*, 32:231–246. 1998.
- A closer look at the 'New' Principle. *British Journal for the Philosophy of*

Science, 46:545–561. 1995.

Objections, Replies, Commentaries, Reviews

Précis of ‘Thinking Off Your Feet’ and reply to critics. *Analysis*, pp. 303–306, 343–353. 2022.

Explanation, abstraction, and difference-making: Comment on Lange. *Philosophy and Phenomenological Research*, 99:726–731. 2019.

Philosophy unbound: Comments on Machery. *Philosophy and Phenomenological Research*, 98:239–245. 2019.

Explanation and reality: Comment on Chakravartty. *Metascience*, 27:371–378. 2018.

Equidynamics and reliable reasoning about frequencies. *Metascience*, Online First DOI 10.1007/s11016-014-9971-y. Author’s reply to critics in symposium on *Tychomancy*. 2015.

The causes of characteristic properties: Insides versus categories. *Behavioral and Brain Sciences*, 37:502–503. Comment on Cimpian and Salomon’s “The inherence heuristic”. 2014.

Précis of ‘Depth’ and reply to critics. *Philosophy and Phenomenological Research*, 84:447–460, 492–505. 2012.

Remarks on Harman and Kulkarni, *Reliable Reasoning*. *Abstracta*, S13:27–41. 2009.

Review of Bertuglia and Vaio, *Nonlinearity, Chaos and Complexity*. *British Journal for the Philosophy of Science*, 60:447–451. 2009.

Comments on Woodward, *Making Things Happen*. *Philosophy and Phenomenological Research*, 77:171–192. 2008.

Essay review of Woodward, *Making Things Happen*. *Philosophy and Phenomenological Research*, 74:233–249. 2007.

The Bayesian treatment of auxiliary hypotheses: Reply to Fitelson and Waterman. *British Journal for the Philosophy of Science*, 56:913–918. 2005.

Review of Batterman, *The Devil in the Details*. *Philosophy of Science*, 69:654–657. 2002.

Only causation matters: Reply to Ahn et al. *Cognition*, 82:71–76. 2001.

Quantum mechanics and frequentism: Reply to Ismael. *British Journal for the Philosophy of Science*, 47:575–577. 1996.

Expository Articles

Complexity theory. In P. Humphreys (ed.), *Oxford Handbook of the Philosophy of Science*. Oxford University Press, Oxford. 2016.

Probabilistic explanation. In L. Sklar (ed.), *Physical Theory*. Oxford University Press, Oxford. 2014.

Notes on Bayesian confirmation theory. Book-length lecture notes. Published online at <http://www.strevens.org/bct/>. 2012.

Bayesian approach to philosophy of science. In D. M. Borchert (ed.), *Encyclopedia of Philosophy*, second edition. Macmillan Reference USA, Detroit. 2006.

Chaos theory. In D. M. Borchert (ed.), *Encyclopedia of Philosophy*, second edition. Macmillan Reference USA, Detroit. 2006.

Probability and chance. In D. M. Borchert (ed.), *Encyclopedia of Philosophy*, second edition. Macmillan Reference USA, Detroit. 2006.

Scientific explanation. In D. M. Borchert (ed.), *Encyclopedia of Philosophy*, second edition. Macmillan Reference USA, Detroit. 2006.

Popular Writing

The Knowledge Machine: How Irrationality Created Modern Science. Liveright, New York. 2020.

Keep science irrational. *Aeon*. <https://aeon.co/essays/an-irrational-constraint-is-the-motivating-force-in-modern-science>. 2020.

What is the difference between knowledge and understanding? *Big Questions Online*. <https://www.bigquestionsonline.com/content/what-difference-between-knowledge-and-understanding>. 2014.

Looking into the black box. *New York Times Stone Blog*. <http://opinionator.blogs.nytimes.com/2013/11/24/looking-into-the-black-box/>. 2013.

Your instinctive genius. *New Scientist*, 2938:28–29. 2013.

Selected Work In Progress

Acquiring natural number concepts from the ground up.

Semi-detachment, the necessary condition for all high-level explanation.

Grasp and scientific understanding.

Epistemic explanation.

The practical value of causal understanding.

Radical conceptual change.

Fellowships and Prizes

Guggenheim Fellowship, 2017–2018

Grants

Templeton Foundation Grant, *Varieties of Understanding*, (as Philosophy Director; project head is Stephen Grimm at Fordham). \$3.56 million dollars, mostly regranted. \$138,423 to NYU. 2013–2016.

National Science Foundation, *STS Scholar's Award*. \$170,000. 2010–2011.

Invited Talks

Philosophy departments or institutes: Jowett Society (Oxford); UCSB (SAGE Lecture); Lone Star College, University of Paris (Sorbonne Seminar in Formal and Social Epistemology); CASIP (Institute of Philosophy in the Chinese Academy of Science), Fudan University, Princeton University; University of Michigan; Indian Philosophy of Science Group; Adolf Grünbaum Memorial Lecture, University of Pittsburgh; University of London Institute of Philosophy; Norwegian University of Science and Technology, Trondheim; University of Nevada, Las Vegas; Alberto Hurtado University; MIT; University of Denver; North Carolina State; University of Copenhagen; Oberlin; LMU Center for Mathematical Philosophy; Barcelona; Stockholm; Carnegie Mellon; Harvard University;

Yeshiva University; Duke University; I.H.P.S.T. Paris; Witten/Hardecke University; Bucknell University; University of Rochester; Center for Philosophy of Science at the University of Pittsburgh; University of Missouri at Columbia; Washington University; University of Minnesota; Florida State University; University of Toronto; University of Auckland; University of Calgary; University of Pennsylvania; Irvine Logic and Philosophy of Science; Columbia Philosophy of Science Seminar; N.Y.U.; Brown University; University of Washington; Cornell University; U.C.S.D.; Caltech; University of Arizona; University of Utah; Stanford University; Iowa State University; C.U.N.Y. Graduate Center

Psychology departments and cognitive science programs: Northwestern, UC Berkeley, Yale University, NYU, Stanford University

HPS and Science Studies: University of Oslo; Norwegian University of Science and Technology, Trondheim; Stevens Institute of Technology, U.C.S.D., Stanford University, University of Toronto

Other departments: Catholic University of America (physics)

Conference Papers

The unity of science: A philippic. KitcherFest. Columbia University. November 2022.

Theory and evidence: Hempel was right. Philosophy of Science Association. Pittsburgh, PA. November 2022.

Semi-detachment, the necessary condition for all high-level causation. Causality and Complexity. University of Salzburg. September 2022.

The practical value of causal understanding. LACSI Conference on Laws of Nature, Explanation, and Understanding. North Carolina State University. September 2022.

Progress through falsehood. Understanding Progress and Progress in Understanding. University of Iceland. June 2022.

Grasp and scientific understanding. Scientific Understanding and Representation (SURE) Workshop IV. Fordham University. April 2022.

Vaulting the conceptual divide, boots first: How radical conceptual change

might be possible. Weinberg Symposium. University of Michigan, Ann Arbor. March 2022.

The illogical logic of science. The Foundations Institute inaugural workshop. University of California, Santa Barbara. March 2022.

The phenomenology of left and right. Workshop on Agency in the Mountains. Brighton, UT. March 2022.

Difference-making and mechanism. Difference-Making and Explanatory Relevance. Online (Hamburg). July 2021.

Bootstrapping the cardinal principle. Society for Philosophy and Psychology. Online. June 2021.

Understanding explanatory esoterica. Understanding, in Science and Beyond. University of Iceland (online). July 2020.

The practical value of causal understanding. Society for Philosophy and Psychology. La Jolla, CA. July 2019.

Why some folk don't get Gettier. Empirical Data and the Philosophical Method. Hebrew University, Jerusalem. June 2019.

Idealization, prediction, differencemaking. Idealization Across the Sciences. Czech Academy of Sciences, Prague. June 2019.

Humanistic understanding. Humane Understanding. Fordham University. May 2019.

Why some folk don't get Gettier. Experimental Philosophy and the Method of Cases. Ruhr University, Bochum, Germany. May 2019.

Idealization, prediction, differencemaking. Representation, Idealization, and Explanation in Science. Auburn University, AL. April 2019.

Humanistic understanding. Understanding Others. Yale University. March 2019.

Necessity in scientific explanation. German Society for the Philosophy of Science. Cologne. February 2019.

Necessity in scientific explanation. Metaphysical Explanation. University of Birmingham. January 2019.

Deliberation and counterfactual thinking. Workshop on the Future of the

Foundations of Physics. Columbia University. October 2018.

Scientific understanding and the problem of grasp. Artificial Intelligence and the Barrier of Meaning. Santa Fe Institute. October 2018.

The problem of initial conditions. Workshop on the Method of Arbitrary Functions. Complutense University of Madrid. September 2018.

Grasp. Explanation Across the Disciplines. Middlebury, VT. September 2018.

Indirect causal generalizations and the uses of entanglement. Australasian Association of Philosophy Conference. Victoria University of Wellington. July 2018.

Understanding and explanation; science and history. Historical and Scientific Explanation: Reexamining the Connection. KU Leuven. June 2018.

Causal difference-making and inference to the best explanation. MuST Conference in Philosophy of Science. University of Turin. June 2018.

Distinctively epistemic explanation. Orange Beach Epistemology Workshop. Orange Beach, AL. May 2018.

Book symposium on Angela Potochnik's *Idealization and the Aims of Science*. Pacific APA. San Diego, CA. April 2018.

The whole story. Workshop on Multiple Realizability, Causation and Reductive Explanations in Science. Valparaiso, Chile. March 2018.

Information strongly prefers to be free. Alvin Goldman Retirement Conference. Rutgers University. February 2018.

Philosophy unbound. Workshop on Edouard Machery's *Philosophy Within Its Proper Bounds*. University of Pittsburgh. February 2018.

Indirect causal generalizations and the uses of entanglement. Workshop on Agency in the Mountains. Brighton, UT. February 2018.

The pleasures of entanglement. Society for the Metaphysics of Science. New York. October 2017.

Comment on Wedgwood. Ancient & Contemporary Epistemology. New York University. September 2017.

Idealization: From explanation to prediction. Workshop on Idealization and Explanation. Munich Center for Mathematical Philosophy. May 2017.

The practical value of causal understanding. Eastern APA. Baltimore. January 2017.

Causal understanding versus predictive know-how. Workshop: Explanation and Understanding. Aarhus University, Denmark. May 2016.

Noncausal scientific explanation. Pacific APA. San Francisco, CA. April 2016.

Human judgment about probability and risk. Central APA. Chicago, IL. March 2016.

Reduction, dependence, and the sciences of complexity. International Workshop in Philosophy of Physics and Philosophy of Biology. Instituto de Filosofía y Ciencias de la Complejidad (IFICC), Santiago, Chile. January 2016.

Why do explanations and mechanisms go hand in hand? Workshop on the Process of Explanation. University of Illinois at Urbana-Champaign. November 2015.

Dappled science in a unified world. Hempel Memorial Workshop. University of Cologne. September 2015.

A unified framework for explanation (for *Varieties of Understanding* symposium). German Society for Analytic Philosophy. September 2015.

Understanding and explanation; science and history. Conference on Historical and Aesthetic Understanding. New York University. June 2015.

How idealizations provide understanding. Munich Workshop on Explanation and Understanding. MCMP, Ludwig Maximilian University of Munich. April 2015.

Idealization: Ontic, semantic, or pragmatic? All of the above. PSA 2014. Chicago. November 2014.

A unified framework for causal and non-causal explanations. Explanation Beyond Causation. MCMP, Ludwig Maximilian University of Munich. October 2014.

Bridges in interlevel explanation. Bridges 2014: Trans-Continental Meeting in Mathematical Philosophy. New York. September 2014.

The problem of initial conditions. Groningen Chance Encounter. University of Groningen. May 2014.

Causality reunified. Causation: New Prospects. Collège de France. December 2013.

Asymptotic idealization in evolutionary explanation. International Society for History, Philosophy, and Social Studies of Biology. University of Montpellier. July 2013.

Idealization, prediction, difference-making. Models and Decisions (MuST Conference in Philosophy of Science). Munich Center for Mathematical Philosophy. September 2013.

Herding and the quest for credit. Social Organization of Scientific Inquiry. Pittsburgh Center for Philosophy of Science. April 2013.

Simplicity, dependence, and the sciences of complexity. Between Biology and Physics: Reduction, Emergence and Complexity. Van Leer Institute, Jerusalem and Tel Aviv University. December 2012.

Simplicity, dependence, and the sciences of complexity. Philosophy of Science Association. San Diego. November 2012.

Bayesianism and confirmation. Scientific Explanation and Methodology of Science. Center for Philosophy of Science and Technology at Shanxi University. September 2012.

Science is dappled; the world is not. Evidence, Capacities, and Explanation: Nancy Cartwright's Philosophy. National Tsing Hua University. September 2012.

Ceteris paribus hedges. Semantics and Pragmatics of Ceteris Paribus Conditions. University of Düsseldorf. June 2012.

Secrecy and sharing in science. Il Congreso Colombiano de Lógica, Epistemología y Filosofía de la Ciencia. Universidad de los Andes and Universidad del Rosario, Bogotá. February 2012.

Herding and the quest for credit. Workshop on Methodology, Systemic Risk, and the Economics Profession. Duke University. December 2011.

Causality unified. Causality and Explanation in the Sciences. University of Ghent. September 2011.

Ceteris paribus hedges. British Society for the Philosophy of Science Annual Meeting. University of Sussex. July 2011.

Complexity and compositionality. Metaphysics and the Philosophy of Science. University of Toronto. May 2011.

Precis of *Depth*. Australasian Association of Philosophy (NZ) Conference. December 2010.

Explanatory autonomy and explanatory irreducibility. Australasian Association of Philosophy (NZ) Conference. December 2010.

Why care about counterfactual support? Chapel Hill Colloquium. October 2010.

Explanatory autonomy and explanatory irreducibility. Types of Explanation in the Special Sciences - The Case of Biology and History. University of Cologne. October 2010.

The special sciences are both autonomous and reducible. Understanding and the Aims of Science. Lorentz Center, Leiden. June 2010.

Secrecy and sharing in science: Resolving the tension. Collective Knowledge and Epistemic Trust. Griefswald, Germany. May 2010.

Varieties of understanding. Pacific APA. April 2010.

The special sciences are both autonomous and reducible. Pacific APA Society for the Metaphysics of Science. April 2010.

The nature of philosophical analysis. Rutgers Methodology Workshop. March 2010.

Thinking mechanistically. McDonnell Mechanisms and Explanation Workshop. University of Berkeley. June 2009.

Inferring probabilities from symmetries: The scientist as child. Probabilistic Models of Cognitive Development. May 2009.

Why the statistical mechanical probabilities are neither necessary nor sufficient to explain the special sciences. Foundations of Statistical Mechanics. Rutgers University. May 2009.

The conditions for successful probabilistic theorizing: Independence. Workshop on Probability in Science. IHPST, Paris. February 2009.

Secrecy and sharing in science. Philosophy of Science Association. November 2008.

Extracting understanding from the causal plenum. Cognitive Science Society. July 2008.

Is the mind Bayesian? Society for Philosophy and Psychology. June 2008.

Objective evidence and absence. Oberlin Colloquium in Philosophy. April 2008.

Three myths about concepts. Concepts Workshop. University of Turku. October 2007.

The big picture: Causation among the levels. Causation and Mechanisms. University of Maryland. May 2007.

The explanatory role of idealization. University of Pittsburgh/Carnegie Mellon Graduate Student Conference, Keynote Speaker. March 2007.

Ceteris paribus hedges and the role of causal hypotheses in science. Kenan Summa Seminar. UNC Chapel Hill. September 2006.

The explanatory role of irreducible properties. University of Cincinnati Annual Colloquium. May 2006.

In praise of instance confirmation. APA Central Division Symposium. April 2006.

The explanatory role of irreducible properties. Explanation Workshop. University of Calgary. March 2006.

Why think causally? Epistemology of Natural and Artificial Systems. Cal State Long Beach. February 2006.

What are special science laws made of? Arizona Ontology Conference. January 2006.

The wrong problem: Relevance and irrelevance in Bayesian confirmation theory. Formal Epistemology Workshop. May 2004.

Causal inference and categorization. CASBS Workshop on Causation and Categorization. February 2004.

Mackie remastered. Northwest Inland Philosophy Conference. May 2003.

The myth of the final criterion. Psychological Essentialism. University of Oregon. 2003.

Bayesian confirmation theory: Inductive logic or mere inductive framework?

CSLI Language, Logic, and Computation Workshop. 2001.

A neoclassical account of artifact concepts. Society for Philosophy and Psychology. 1997.

Commentator: Pacific APA, April 2007; La Pietra Conference on Causation, June 2006; Online Philosophy Conference, May 2006.

Journal Refereeing

Editorial boards: *Australasian Journal of Philosophy*, *Episteme*, *Philosophy Compass*

Philosophy journals: *APA Journal*, *Biology and Philosophy*, *British Journal for the Philosophy of Science*, *Canadian Journal of Philosophy*, *Dialectica*, *Erkenntnis*, *European Journal for the Philosophy of Science*, *International Journal of Philosophical Studies*, *International Studies in the Philosophy of Science*, *Journal of the Philosophy of History*, *Mind and Language*, *Mind*, *Noûs*, *Perspectives on Science*, *Philosophers' Imprint*, *Philosophical Quarterly*, *Philosophical Review* *Philosophical Studies*, *Philosophy and Phenomenological Research*, *Philosophy of Science*, *Res Philosophica*, *Studies in History and Philosophy of Science*, *Synthese*,

Psychology journals: *Cognition*, *Cognitive Science*, *Memory and Cognition*, *Psychological Review*, *Psychonomic Bulletin & Review* *Trends in Cognitive Sciences*

Other: *Journal of Economic Methodology*

Books: Cambridge University Press, Oxford University Press, Princeton University Press

Grant proposals: National Science Foundation, Canada Research Council, FWO Flanders, Dutch Council for the Humanities, Danish Council for Independent Research, Templeton Foundation, Riksbankens Jubileumsfond (Sweden)

Service to the Profession

Advisory board, Albert Einstein Institute for Advanced Study in the Life Sciences, 2021 onward

Advisory board, Fudan University Department of Logic and Philosophy of
Science, 2017 onward

Departmental review committee, University of Utah Department of
Philosophy, October 2017

Co-organizer, *Time and Causality in the Sciences* conference, June 2017

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