

Marshall Abrams

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Current position

Associate Professor, Department of Philosophy, University of Alabama at Birmingham

Education

Ph.D. in Philosophy, University of Chicago, 2002.

Dissertation: *Probabilistic Foundations of Teleology and Content*.

Committee: William C. Wimsatt, Ruth G. Millikan, Murat Aydede

NSF-sponsored Post-Doctoral Fellow, Center for Philosophy of Biology, Duke University, 2004–2005.

NEH Institute for Advanced Topics in the Digital Humanities: Computer Simulations in the Humanities, June 1–17, 2011; June 1–3, 2012.

A.B. in Ontology and Cognition, with honors, University of California, Davis, 1983.

Areas of specialization: Philosophy of science, philosophy of biology, philosophy of social science, philosophy of probability, philosophy of cognitive science.

Areas of competence: Philosophy of mind, metaphysics, epistemology, philosophy of language, modern philosophy, symbolic logic, elementary decision theory.

Publications:

20. “Probability and Manipulation: Evolution and Simulation in Applied Population Genetics”, *Erkenntnis* 80(3, supplement), December 2015.
19. “Coherence, Muller’s Ratchet, and the Maintenance of Culture”, *Philosophy of Science* 82(5), December 2015.
18. “Cultural Variant Interaction in Teaching and Transmission”, *Behavioral and Brain Sciences* 38, January 2015, (commentary on Michelle Ann Kline’s “How to Learn About Teaching: An Evolutionary Framework for the Study of Teaching Behavior in Humans and Other Animals”).
17. “Equidynamics and Reliable Reasoning about Frequencies”, *Metascience* 24(2), 2015 (invited contribution to book symposium on Michael Strevens’ *Tychomancy: Inferring Probability from Causal Structure*).
16. “Maintenance of Cultural Diversity: Social Roles, Social Networks, and Cognitive Networks”, *Behavioral and Brain Sciences* 37(3), June 2014 (commentary on Paul E. Smaldino’s “The Cultural Evolution of Emergent Group-level Traits”).
15. “Environmental Grain, Organism Fitness, and Type Fitness”, in *Entangled Life: Organism and Environment in the Biological and Social Sciences*, eds. Pearce, Barker, and Desjardins, Springer 2014.
14. “A Moderate Role for Cognitive Models in Agent-Based Modeling of Cultural Change”, *Complex Adaptive Systems Modeling* 1(16), September 2013.
13. “Populations and Pigeons: Prosaic Pluralism about Evolutionary Causes”, *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 44, 2013, pp. 294-301.
12. “Implications of Uses of Wright’s F_{ST} for the Role of Probability and Causation in Evolution”, *Philosophy of Science* 79(5), December 2012.
11. “Measured, Modeled, and Causal Conceptions of Fitness”, *Frontiers in Genetics* 3(196), October 2012.

10. “Mechanistic Social Probability: How Individual Choices and Varying Circumstances Produce Stable Social Patterns”, *Oxford Handbook of Philosophy of Social Science*, ed. Harold Kincaid, Oxford University Press, 2012.
9. “Mechanistic Probability”, *Synthese* 187(2), July 2012.
8. “Natural Selection at Genomic Regions Associated with Obesity and Type-2 Diabetes: East Asians and Sub-Saharan Africans Exhibit High Levels of Differentiation at Type-2 Diabetes Regions”, by Yann C. Klimentidis, Marshall Abrams, Jelai Wang, Jose R. Fernandez, and David B. Allison, *Human Genetics* 129(4), 2011.
7. “The Unity of Fitness”, *Philosophy of Science* 76(5), December 2009.
6. “Fitness ‘Kinematics’: Biological Function, Altruism, and Organism-Environment Development”, *Biology and Philosophy* 24(4), September 2009.
5. “What Determines Biological Fitness? The Problem of the Reference Environment”, *Synthese* 166(1), January 2009.
4. “How Do Natural Selection and Random Drift Interact?”, *Philosophy of Science* 74(5), December 2007.
3. “Fitness and Propensity’s Annulment?”, *Biology and Philosophy* 22(1), January 2007.
2. “Infinite Populations and Counterfactual Frequencies in Evolutionary Theory”, *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 37(2), June 2006.
1. “Teleosemantics without Natural Selection”, *Biology and Philosophy* 20(1), January 2005.

In preparation

- “Probability and Chance in Mechanisms” (*Routledge Handbook of Philosophy of Mechanisms*, Glennan & Illari)
- “Modeling the Coevolution of Water Management and Religion in Bali” (*Beyond the Meme*, Wimsatt & Love)
- “Mechanistic Probability Revisited”
- “What Statistical Abstraction Really Is”
- “Imprecise Probability and Biological Fitness”

Software for research and teaching

- *popco*: A framework for agent-based simulations with a connectionist model of the influence of analogies on cultural transmission in structured populations and networks (Clojure, Common Lisp, NetLogo).
- *CultranDejanet*: Models of cultural transmission on networks (NetLogo).
- *bali*: Extensions of Lansing-Kremer-Janssen model of Balinese water allocation (NetLogo, Clojure, MASON).
- *Heavens*: Animated diagrams for teaching early models of planetary motion (d3.js, Javascript).

Presentations, etc. (*: invited)

* Keynote presentation, conference on “Infinite Idealizations in Science”, Munich Center for Mathematical Philosophy at LMU Munich, Ludwig-Maximilians-Universität, June 9–11, 2016.

Commentary on Beckett Sterner’s “A Formal Model of Biological Lineages”, American Philosophical Association, Central Division, Chicago, IL, March 3, 2016.

Commentary on William C. Wimsatt’s “Crucial Missing Elements in Theories of Cultural Evolution”, American Philosophical Association, Pacific Division, San Francisco, CA, April 1, 2016.

“Little Gods: Analogy, Identification, and Indirect Benefit”, American Anthropological Association, Denver, CO, November 21, 2015.

* “Modeling the Development of Sustainable Rice Production and Religious Practice in Bali”, Department of Anthropology, University of Alabama (Tuscaloosa), November 6, 2015.

“Probability in Mechanistic Explanation”, Department of Philosophy, University of British Columbia, October 23, 2015.

Panel “What Does Science Offer Sixteenth Century Studies (and vice versa)?” with Andrew Keitt and Edward Slingerland, Sixteenth Century Studies Society, Vancouver, BC, October 22, 2015.

“Causal Probability and Scientific Practice”, European Philosophy of Science Association, Düsseldorf, Germany, September 25, 2015.

“Resolving Puzzles about Types and Tokens in Evolution with New Probability Concepts”, International Society for the History, Philosophy, and Social Studies of Biology, Université du Québec à Montréal, July 6, 2015.

“Modeling Complex Cultural Interactions in Cooperation: The Coevolution of Sustainable Rice Farming and Religious Practices in Bali”, International Society for the History, Philosophy, and Social Studies of Biology, Université du Québec à Montréal, July 6, 2015.

* “Causal and Non-Causal Probabilities in Applied Population Genetics”, Mississippi State University, Department of Philosophy and Religion, April 10, 2015.

“Modeling Complex Cultural Influences on Sustainable Agriculture in Bali”, Society for Anthropological Sciences, Pittsburgh, PA, March 25, 2015.

“Causal and Non-Causal Probabilities in Applied Population Genetics”, Center for Philosophy of Science, University of Pittsburgh, March 24, 2015.

* “Extending Science with Humanities through Computer Simulations”, invited presentation at the American Philosophical Association, Eastern Division, in a session titled “Symposium: Computer Simulations in Philosophical Research”, Philadelphia, PA, December 28, 2014.

“Coherence, Muller’s Ratchet, and the Maintenance of Culture”, Philosophy of Science Association, Chicago, IL, November 7, 2014.

“Humanistic Computer Simulations”, THATcamp Alabama (The Humanities and Technology Camp), University of Alabama at Birmingham, September 6, 2014

“Coherence, Muller’s Ratchet, and the Maintenance of Culture”, Society for Exact Philosophy, California Institute of Technology, Pasadena, CA, June 23, 2014.

“Patterns in Complex Social and Evolutionary Processes”, Haddin Humanities Forum, University of Alabama at Birmingham, February 28, 2014.

“Computer Simulation as Digital Humanities”, in “Introduction to Digital Humanities”, Sterne Library Brunch and Learn Series, February 19, 2014.

“Muller’s Ratchet and the Maintenance of Culture: Models of the Evolutionary Advantage of Sex and their Implications for Models of Cultural Transmission” (poster), UAB Darwin Day, February 14, 2014.

“Incorporating the Role of Analogy in Cultural Transmission and Human Dispersal into Future Publics and Current Engagements”, American Anthropological Association, Chicago, IL, November 24, 2013.

“On the Role of Analogy in Cultural Transmission and Human Dispersal”, Human Behavior and Evolution Society, Miami, FL, July 18, 2013.

“The Role of Analogy in Cultural Transmission and Human Dispersal”, International Society for the History, Philosophy, and Social Studies of Biology, Montpellier, France, July 11, 2013.

“Metaphor, Analogy, and Cultural Biases on Cultural Transmission”, Society for Anthropological Sciences, Mobile, AL, February 23, 2013.

“Muller’s Ratchet and the Maintenance of Culture”, Mississippi Philosophical Association, Mississippi State University, February 9, 2013.

* “Mechanistic Probability: Implications for a Puzzle about Types and Tokens in Evolution”, Johannes von Kries’ Conception of Probability, its Roots and Impact, University of Bonn, Germany, September 14, 2012 (invited and funded).

My cultural change simulation research was featured in an article in the September 2012 edition of the online version of *UAB Magazine*: “The Sims: Philosophy Edition”, by Matt Windsor (<http://www.uab.edu/uabmagazine/2012/september/philosophy>).

“Metaphor and Coherence: A Moderate Role for Cognitive Models in Agent-Based Simulation of Cultural Change”, Human Complexity 2012, University of North Carolina, Charlotte, NC, May 31, 2012.

“Capturing the Complexity of Human Culture in a Computer Simulation”, Haddin Humanities Forum, University of Alabama at Birmingham, April 13, 2012.

“A Moderate Role for Cognitive Models in Agent-Based Modeling of Cultural Change”, Philosophy of Social Science Roundtable, University of Nebraska, Lincoln, NE, March 9, 2012.

“Simulating Coherence in Cultural Evolution”, International Association for Computing and Philosophy, American Philosophical Association, Central Division, Chicago, February 16, 2012.

“Coherence in Cultural Evolution: A Computer Simulation of Sanday’s Hypothesis in *Female Power and Male Dominance*” (poster), American Anthropological Association, Montréal, QC, November 17, 2011.

* “Mechanistic Social Probability: How Varying Circumstances Produce Stable Social Patterns”, Institut d’Histoire et de Philosophie des Sciences et des Techniques, Université de Paris 1, September 23, 2011 (invited).

“Sometimes a Heart is Just like a Wheel of Fortune: How the Complexity of Organisms’ Interactions Makes Natural Selection a Cause”, CaEitS2011, Causality and Explanation in the Sciences, Ghent University, Belgium, September 21, 2011.

“Selection and Drift: Distinguishable Causal Factors—Not Processes, Not Independently Manipulable”, International Society for the History, Philosophy, and Social Studies of Biology, Salt Lake City, Utah, July 11, 2011.

“Symbolic Cultural Evolution: Simulating Coherence in Cultural Evolution” (poster), International Society for the History, Philosophy, and Social Studies of Biology, Salt Lake City, Utah, July 12, 2011.

“Sometimes a Heart Is Just Like a Wheel of Fortune: The Role of Causal Structure in Biological Probability”, Workshop on the Metaphysics of Microevolutionary Processes, University of Alabama at Birmingham, April 9, 2011.

“Probability in Social Contexts: How Individual Choices and Varying Circumstances Produce Stable Social Patterns”, International Network for Economic Method, University of Alabama at Birmingham, Nov. 12, 2010.

“Implications of Use of Wright’s F_{ST} for the Role of Probability and Causation in Evolution”, Philosophy of Science Association, Montréal, QC, November 5, 2010.

“What Sort of Environmental Grain is Relevant to Biological Fitness?”, Integrating Complexity: Environment and History, University of Western Ontario, October 8, 2010.

“What is Probability in the Social Sciences? How Individual Choices and Varying Circumstances Produce Stable Patterns”, Current Issues in the Philosophy and Methodology of the Social Sciences, University of Alabama at Birmingham, April 18, 2010.

“Individuals have no Fitnesses if Fitness Differences Cause Evolution”, 150 Years After *Origin*: Biological, Historical, and Philosophical Perspectives, University of Toronto, November 24, 2009.

“Fitness Tradeoffs and Component Effects”, European Philosophy of Science Association, Amsterdam, The Netherlands, October 24, 2009.

* “What Kind of Environmental Grain is Relevant to Biological Fitness?”, Symposium on the Philosophy of Evolution, University of Groningen, The Netherlands, October 20, 2009 (invited).

“A Causalist Reformulation of Statisticalist Pluralism”, International Society for History, Philosophy, and Social Studies of Biology, Brisbane, Australia, July 13, 2009.

“Borrowing Laplacean Children’s Toys: On the Utility of Largely Unknowable Models”, Australian Association of Philosophy, Melbourne, Australia, July 5–10, 2009.

“Toward a Mechanistic Interpretation of Probability”, Metaphysics of Science, Melbourne, Australia, July 5, 2009.

“Toward a Mechanistic Interpretation of Probability”, Society for Exact Philosophy, Edmonton, Alberta, May 7–9, 2009.

“Borrowing Laplacean Children’s Toys: On the Utility of Largely Unknowable, Ideal Models”, Models and Simulations 3, Charlottesville, Virginia, March 6, 2009

* “A Causal Formulation of Statisticalist Pluralism about Evolution”, Workshop on Probability in Physics and Biology, Institut d’Histoire et de Philosophie des Sciences et des Techniques, Université de Paris 1, February 14, 2009 (invited).

“Toward a Mechanistic Interpretation of Probability”, Florida Philosophical Association, Daytona Beach, Florida, November 16, 2008.

“The Unity of Fitness”, Philosophy of Science Association, Pittsburgh, Pennsylvania, November 7, 2008.

“Radical Pluralisms about Units of Selection”, European Philosophy of Science Association, Madrid, Spain, November 17, 2007.

“The Unity of Fitness”, International Society for the History, Philosophy, and Social Studies of Biology, Exeter, UK, July 29, 2007.

* “Evolution by Natural Selection despite the Vagaries of Lives”, University of Alabama (Tuscaloosa), April 13, 2007 (invited).

“What Determines Biological Fitness? The Problem of the Reference Environment”, Florida Philosophical Association, Tampa, Florida, November 9-11, 2006.

“How Do Natural Selection and Random Drift Interact?”, Philosophy of Science Association, Vancouver, BC, November 4, 2006.

“Comments on Scott James’ ‘The Caveman’s Conscience: Evolution and Moral Realism’”, Central States Philosophical Association, Memphis, Tennessee, October 14, 2006.

“What Determines Biological Fitness? The Problem of the Reference Environment”, selected by Duke University Center for Philosophy of Biology Reading Group, September 12, 2006.

“Why Did Human Cognition Evolve?”, George Washington University, November 18, 2005.

“The Interaction of Evolutionary Forces: Drift, Selection, and Components of Fitness”, DC History and Philosophy of Biology Group, Washington, DC, November 17, 2005.

“The Path Space Conception of Components of Fitness”, International Society for the History, Philosophy, and Social Studies of Biology, Guelph, Ontario, July 16, 2005.

“Biological Fitness as a Function of Interval-Valued Mechanistic Probabilities”, Society for Exact Philosophy, Toronto, Ontario, May 20, 2005.

“What Kind of Environmental Complexity Selects for Decision Theory?”, Conference on Recent Work in Biology and Philosophy: The Evolution of Cognition: Niche Construction, Culture, and Environmental Complexity, Duke University, April 23, 2005

“Comments on Lane’s ‘Oak Trees and Ashes: An Argument that Identity is Vague and Non- Transitive’”, Southern Society for Philosophy & Psychology, Durham, North Carolina, March 24, 2005.

“The Propensity Interpretation of Fitness without Propensity”, Duke University Center for Philosophy of Biology Reading Group, September 7, 2004.

“Two Roles for Probability in a Theory of Fitness”, American Philosophical Association, Pacific Division, Pasadena, California, March 26, 2004.

“Teleosemantics and Natural Selection”, American Philosophical Association, Eastern Division, Philadelphia, Pennsylvania, December 29, 2002.

“Short-Run Mechanistic Probability”, Philosophy of Science Association, Vancouver, BC, November 3, 2000.

“Propensities in the Propensity Interpretation of Fitness”, Southwestern Philosophical Society, Tulsa, Oklahoma, October 23, 1998.

Service

Profession

- Associate Editor, *Frontiers in Evolutionary and Populations Genetics/Frontiers in Genetics* (2011–)
- Program committees and other conference reviewing: Philosophy of Science Association (2016), European Philosophy of Science Association (2015), Society for the Metaphysics of Science (2015), Society for Exact Philosophy (2014).
- Reviewer for *Biology and Philosophy* (2006–2012, 2014); *British Journal for the Philosophy of Science* (2008–2011, 2013); *European Journal for Philosophy of Science* (2014); *Frontiers in Bioinformatics and Computational Biology* (2013); *Frontiers in Livestock Genomics* (2014); *Journal of Theoretical Biology* (2008–2010); *Philosopher's Imprint* (2012); *Philosophy of Science* (2010–2012, 2014); *Philosophy of the Social Sciences* (2013–2014); *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* (2013–2014); *Synthese* (2006, 2008, 2013).
- Editorial board member, Springer series *History, Philosophy and Theory of the Life Sciences* (2010–)
- Organized symposia for PSA 2010, ISHPSSB 2007, and ISHPSSB 2015.

University of Alabama at Birmingham

- Faculty Senate Alternate 2015–2017.
- Faculty Senate Curriculum Committee 2015–2016.
- Presentation in “Introduction to Digital Humanities”, Sterne Library Brunch and Learn Series, February 19, 2014 (also listed above under “Presentations, etc.”).
- Dean’s Humanities Grants Committee, Spring 2014.
- Panelist in Success Stories: UAB Panel on Tenure and Promotion, March 31, 2014.
- Philosophy Department Hiring Committee, 2012–2013.
- Coordinated visit by Martha Nussbaum of the University of Chicago, April 1–3, 2013 (John S. Jemison Visiting Professorship in the Humanities).
- Organized College of Arts and Sciences Interdisciplinary Innovation Forum, “Genes and Culture: Models of Interaction”, October 9, 2012.
- Department of Philosophy representative to Sterne Library, 2012–2013.
- Review Committee for NEH Summer Stipend applications, Fall 2012.
- Interdisciplinary Innovation Forum Committee, College of Arts and Sciences, 2011–2012.
- Philosophy Department Committee for Internal Conflicts of Interest 2012–2013.
- Philosophy Department Committee for the 2013 Jemison Speaker 2012–2013.
- Organized visit by Susan Haack of the University of Miami, lectures on April 19 and 20, 2012 (John S. Jemison Visiting Professorship in the Humanities).
- Department of Philosophy Quality Enhancement Program student writing evaluation, Summer 2010, 2011.
- Organized Workshop on the Metaphysics of Microevolutionary Processes, April 8–9, 2011.
- Organized visit by Lenny Moss of the University of Exeter, lectures on April 4 and 5, 2011.
- Evolution, Cognition, and Culture Working Group, 2010–2012.
- Promotion and Tenure Committee, School of Arts and Humanities/College of Arts and Sciences, 2009-2011.
- Occasional guest judge for UAB Ethics Bowl teams, 2009-2012.
- Occasional guest interviewer for UAB student scholarship applicants, 2009.
- Faculty Affairs Committee, School of Arts and Humanities, 2007-2009.
- Freshman Discussion Group Facilitator, Summer 2008.
- Wrote background document “Logical Arguments and *Field Notes from a Catastrophe*” distributed to Freshman Discussion Group Facilitators, Summer 2008.
- Secretary of the Faculty, School of Arts and Humanities, 2007-2008.

Pre-UAB

- Faculty participant, student-run Physics and Philosophy Club, George Washington University, 2005-2006
- Thacher Lecture Committee, George Washington University, 2005-2006
- Organized conference: The Evolution of Cognition: Niche Construction, Culture, and Environmental Complexity April 23-24, 2005.
- Participated in Core Curriculum review, Colgate University, May 2004.

Grants, etc.

- 2015, \$2800 College of Arts and Sciences Dean's Grant for travel to European Philosophy of Science Association, Düsseldorf, Germany, September 2015.
- 2013, \$3000 College of Arts and Sciences Dean's Grant for travel to International Society of History, Philosophy, and Social Studies of Biology, Montpellier, France, July 2013.
- 2012–2013, \$3000 College of Arts and Sciences Dean's Grant for software modeling of cultural change..

Employment history

University of Alabama at Birmingham

- Assistant/Associate Professor, Department of Philosophy, 2006–present
Courses: The Scientific Enterprise; Minds and Machines; Philosophy of Mind; Evolution and Human Life; Issues in Philosophy and Biology; Holding Together: Coherence in Culture, Reason, and Action; Meaning, Emotion, and Society; Introduction to Philosophy; Contemporary Moral Issues.
2011: Statistical Genetics-Focused Support Mentor for T32 Postdoctoral Fellowships, Section on Statistical Genetics, Department of Biostatistics, School of Public Health.
2010, 2011: Work on online teaching materials on biases in research for UAB Center for Clinical and Translational Sciences, via UAB Center for Ethics and Values in the Sciences.

George Washington University

- Visiting Assistant Professor, Department of Philosophy, 2005–2006.
(Courses: Mind, Brain, and Artificial Intelligence; Philosophy of Science; Theory of Knowledge; Introduction to Logic)

Duke University

- NSF-sponsored Post-Doctoral Fellow, Center for Philosophy of Biology, 2004–2005.
(Taught seminar: Philosophy of Biology; Organized conference: The Evolution of Cognition: Niche Construction, Culture, and Environmental Complexity, April 23-24, 2005.)

Colgate University

- Visiting Assistant Professor, Department of Philosophy and Religion, 2002–2004.
(Courses: Foundations of Scientific Explanation; Philosophy of Mind; Metaphysics; Logic; The Challenge of Modernity; Western Traditions)

University of Chicago

- Instructor, Fall 1998: Philosophical Perspectives on the Humanities.
- Teaching Assistant, Spring 1988: History of Philosophy IV: Recent Philosophy.
- Teaching Assistant, Autumn 1987: Elementary Logic.
- Grader, Spring 1986: Introduction to Metaphysics and Epistemology.

St. Xavier University

- Instructor, Spring 1998: Logic and Argument.

Center for the Advancement of Academically Talented Youth (JHU)

Lancaster, PA site. (A summer program offering college-level courses to teenagers.)
Summer 1988, 1989, three sessions.

Professional Affiliations

American Philosophical Association
Philosophy of Science Association
International Society for the History, Philosophy, and Social Studies of Biology
Society for Exact Philosophy
Human Behavior and Evolution Society
Evolutionary Anthropology Society
Society for Anthropological Sciences
American Anthropological Association

Languages

Reading knowledge of French.