

**Sandra D. Mitchell**  
**Curriculum Vitae**  
**2023**

Department of History and Philosophy of Science  
University of Pittsburgh  
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**EDUCATION**

- Ph.D. History and Philosophy of Science, University of Pittsburgh 1987
- M.Sc. Logic, Philosophy and Scientific Method, The London School of Economics and Political Science (with distinction) 1975
- B.A. Philosophy, Pitzer College (cum laude) 1973

**ACADEMIC APPOINTMENTS**

**Tenure-track Positions**

- University of Pittsburgh, Department of History and Philosophy of Science, Distinguished Professor, 2017 - present
- University of Pittsburgh, Department of History and Philosophy of Science, Professor 2000-2017
- University of California, San Diego, Department of Philosophy, Assistant Professor and Associate Professor, 1989-2000
- The Ohio State University, Department of Philosophy, Lecturer and Assistant Professor, 1985-1989

**Visiting Positions**

- Eidyn Research Center, Department of Philosophy, University of Edinburgh, Regular Visiting Distinguished Professor 2017-2020
- Max Planck Institute for History of Science, Berlin, Germany, Visiting Scholar, 2010
- Witten/Herdecke University, Germany, Visiting Scholar, 2008
- Max Planck Institute for the Study of Societies, Cologne, Germany, Fellow 2004-2005
- Wissenschaftskolleg zu Berlin, Institute for Advanced Studies, Berlin, Germany, Fellow, 1993-1994
- Zentrum für Interdisziplinäre Forschung, Universität Bielefeld, Germany, Research Fellow, 1991-1992
- Stanford University, Department of Philosophy, Visiting Scholar, 1988
- Center for the Philosophy of Science, University of Pittsburgh, Fellow, 1999
- The Ohio State University Medical School, Medical Humanities and Behavioral Sciences, Lecturer, 1987-1988
- University of California at Santa Cruz, Department of Philosophy, Visiting Lecturer, spring Term, 1985

## PUBLICATIONS

### Books

*Unsimple Truths: Science, Complexity and Policy*, University of Chicago Press, 2009

*Komplexitäten. Warum wir erst anfangen, die Welt zu verstehen*, translated by Sebastian Vogel, Suhrkamp Verlag, 2008

*Biological Complexity and Integrative Pluralism*, Cambridge University Press, 2003

### Edited Volumes

*The Pragmatist Challenge: Pragmatist Metaphysics for Philosophy of Science* (with H. K. Andersen), Oxford University Press, 2023

Symposia Papers, Proceedings of the 2002 Biennial Meeting of the Philosophy of Science Association *Philosophy of Science*, Volume 71, Number 5, 2004

Contributed Papers, Proceedings of the 2002 Biennial Meeting of the Philosophy of Science Association *Philosophy of Science*, Volume 70, Number 5, 2003a

*Ceteris Paribus Laws*, (with John Earman and Clark Glymour), Kluwer Academic Publishers, 2002

*Human by Nature: Between Biology and the Social Sciences*, (with Peter Weingart, Peter Richerson and Sabine Maasen), Erlbaum Press, 1997

### Refereed Journal Articles

“The Landscape of Integrative Pluralism” 2023 (forthcoming): *Theoria: An International Journal for Theory, History and Foundations of Science*

“Through the Fractured Looking Glass”, *Philosophy of Science*, Volume 87, Number 5: 771-792, 2020.

“Pluralismo integrador; Un nuevo enfoque para comprender la complejidad biológica” with Marta Bertolaso, *Investigación y Ciencia*, Enero No. 484, pp. 3-4, 2017

“Why after 50 Years are Protein X-ray Crystallographers Still in Business?” with Angela M. Gronenborn, *British Journal for the Philosophy of Science*, 2017, 703-723.

“Multilevel Research Strategies and Biological Systems”, with Maureen A. O’Malley, Ingo Brigandt, Alan C. Love, John W. Crawford, Jack A. Gilbert, Rob Knight, and Forest Rohwer, *Philosophy of Science*, pp. 811-828, 2014

“Emergence: Logical, Functional and Dynamical Accounts” *Synthese*, pp. 171-186, 2012

“Determinism vs. Contingency: A False Dichotomy” *Origins of Life and Evolution of Biospheres*, pp. 4-5, 2010

“Exporting Causal Knowledge in Evolutionary and Developmental Biology” *Philosophy of Science*, pp. 697–706, 2008a

“The Import of Uncertainty” *The Pluralist*, pp. 58–71, 2007

“Integration without Unification: An Argument for Pluralism in the Biological Sciences”, with Michael R. Dietrich, *American Naturalist*, pp. S73–S79, 2006

“Modularity: More than a Buzzword” Essay Review, *Biological Theory*, pp. 98-101, 2005

- “Why Integrative Pluralism?”, *Emergence: Complexity & Organization*, pp. 81-91, 2004a(reprinted in *Emergence: Complexity & Organization: 2004 Annual, Vol. 6* edited by Kurt A. Richardson; Jeffrey A. Goldstein; Peter M. Allen; David Snowden, ISCE Publishing, pp. 181-191, 2006)
- “Ceteris Paribus – An Inadequate Representation for Biological Contingency”, *Erkenntnis* pp. 329-350, 2002a
- “Editorial” with John Earman and Clark Glymour, *Erkenntnis*, pp. 277-280, 2002b
- “Integrative Pluralism” *Biology and Philosophy*, pp. 55-70, 2002c
- "Dimensions of Scientific Law" *Philosophy of Science*, pp. 242-265, 2000
- "Self-organization and the evolution of division of labor" co-authored with Robert E. Page, Jr., *Apidologie*, pp. 101-120, 1998
- “Pragmatic Laws”, *Philosophy of Science (special issue)*, L. Darden (ed.) *PSA 1996: Part II, Symposia Papers*, pp. S468-S479, 1997a
- "Function, Fitness and Disposition", *Biology and Philosophy*, pp. 39-54, 1995 (Reprinted in C. Allen, M. Bekoff and G. Lauder (Eds.): *Nature's Purposes: Analyses of Function and Design in Biology*, MIT Press, pp. 395-415, 1998)
- "Rough Waters Between Genes and Culture: An Anthropological and Philosophical View on *Coevolution*", with Monique Borgerhoff Mulder (a review article), *Biology and Philosophy*, pp. 471-48, 1994
- "Dispositions or Etiologies: A Comment on Bigelow and Pargetter", *Journal of Philosophy*, pp. 249-259, 1993
- "On Pluralism and Competition in Evolutionary Explanations", *American Zoologist*, pp. 135-144, 1992
- "The Causal Background for Functional Explanations", *International Studies in the Philosophy of Science*, pp. 213-230, 1989
- "Competing Units of Selection? - A Case of Symbiosis", *Philosophy of Science*, pp. 351-67, 1987

### **Book Chapters**

- “The Bearable Thinness of Being: A Pragmatist Metaphysics of Affordances” in H. K. Andersen and Sandra D. Mitchell (eds): *The Pragmatist Challenge: Pragmatist Metaphysics for Philosophy of Science* (with), Oxford University Press, 2023
- “Perspectives, Representation and Integration”, in M. Massimi and C.D. McCoy (eds.): *Understanding Perspectivism: Scientific Challenges and Methodological Prospects*, Taylor & Francis 2020
- “Instrumental Perspectivism: Is AI Machine Learning Technology like NMR Spectroscopy?”, in M. Bertolaso and F. Sterpetti (eds) *Will Science Remain Human*, Springer 2019
- “Modes of Explanation: Complex Phenomena”, in M. Lissack and A. Graber (eds.) *Modes of Explanation: Affordances for Action and Prediction*, Palgrave MacMillan, 2014a
- “Complexity and Explanation in Social Science” in *Philosophy of the Social Sciences: Philosophical Theory and Scientific Practice*, edited by Chrysostomos Mantzavinos, Cambridge University Press, pp. 130-146, 2009a

- “Explaining Complex Behavior” in K. Kendler and J. Parnas (eds), *Philosophical Issues in Psychiatry: Explanation, Phenomenology and Nosology*, Johns Hopkins Press, pp. 19-38, 2008b
- “Taming Causal Complexity” in K. Kendler and J. Parnas (eds), *Philosophical Issues in Psychiatry: Explanation, Phenomenology and Nosology*, Johns Hopkins Press, pp. 125-131, 2008c
- “Life is not so simple: the epistemology of Complexity” in Jahrbuch 2003/2004 Wissenschaftskolleg zu Berlin, pp. 246-262, 2005a
- “Anthropomorphism: Cross-species modeling” in R. Daston and G. Mitman (eds.) *Thinking with Animals*, Columbia University Press, 2005b (Reprinted in Susan Armstrong and Richard G. Botzler (eds.) *The Animal Ethics Reader*, Routledge 2008)
- “The Prescribed and Proscribed Values in Science Policy”, in Peter Machamer and Gereon Wolters (eds.) *Science, Values and Objectivity*, University of Pittsburgh Press, pp.245-255, 2004
- “Contingent Generalizations: Lessons from Biology”, in Renate Mayntz (ed.) *Akteure, Mechanismen, Modelle. Zur Theoriefähigkeit makro-sozialer Analysen*, Campus Verlag, Frankfurt, pp. 179-195, 2002d
- "The Why's and How's of Interdisciplinarity", with Lorraine Daston, Gerd Gigerenzer, Nevin Sesardic and Peter Sloep, in *Human by Nature: Between Biology and the Social Sciences*, Erlbaum Press, pp. 103-150, 1997b
- "The Superorganism Metaphor: Then and Now", in S. Maasen, E. Mendelsohn and P. Weingart (Eds.): *Biology as Society, Society as Biology: Metaphors*. Yearbook in the Sociology of Science, Kluwer Academic Publishers, pp. 231-48, 1995a
- "The Units of Behavior in Evolutionary Explanations", in M. Bekoff and D. Jamieson (eds.) *Explanation and Interpretation in the Study of Animal Behavior: Comparative Perspectives*, Westview Press, pp. 63-83, 1990 (Reprinted in M. Bekoff and D. Jamieson (Eds.) *Readings in Animal Cognition*, MIT Press, pp. 129-142, 1996)

### **Conference Proceedings**

- “On Norton Wise and Michael Heidelberger”, in Thomas Sturm/Uljana Feest: *What (Good) is Historical Epistemology?* (Preprint No. 386) Max Planck Institute for History of Science, 2009b
- “Determinism vs Contingency: A False Dichotomy”, "Workshop OQOL'09: Open Questions on the Origins of Life 2009." *Origins of Life and Evolution of Biospheres* **40**(4): 361-362 (2010)
- "Self-Organization and Adaptation in Insect Societies" co-authored with Robert E. Page, Jr. in A. Fine, M. Forbes, and L. Wessels (eds.) *PSA 1990, Volume 2*, Philosophy of Science Association, East Lansing, Michigan, , pp. 289-298, 1991
- "Can Sociobiology Adapt to Cultural Selection?" in P. Machamer and A. Fine (Eds.) *PSA 1986, Volume 2*, Philosophy of Science Association, East Lansing, Michigan, pp. 87-96, 1987a

## Book Reviews

- “Paradigm shift, in perspective” Review of *Kuhn’s Structure of Scientific Revolutions at Fifty*, Richards and Daston (eds.), *Science*, p. 1404, 25 March 2016.
- “The Hazards of Reductionism: Review of John Dupre: *Processes of Life*, *BioScience*, pp. 980-981, 2013
- “Review of Vittorio Hösle; Christian Illies (eds.) *Darwinism & Philosophy*, University of Notre Dame Press, 2005”, *ISIS*, pp. 664-665, 2007a
- “Bees as Superorganisms” (R.F.A. Moritz and E.E. Southwick), co-authored with Robert E. Page, Jr., *Trends in Ecology & Evolution*, pp. 265-266, 1993

## Other Publications

- Blog post at the American Philosophical Association “[Trump’s War on Fact-Finding](#)“, April 15, 2019
- Blog post at the Union of Concerned Scientists “[The Ill-logic of Alternative Facts \(sic\)](#)” June 7, 2017
- “The Language of Love” poem, *Vox Populi* 2017
- “Peace is Boring” *Pittsburgh Post-Gazette*, Saturday Poem, January 24, 2015a
- “Complex, Historical, Self-reflexive: Expect the Unexpected!” with Wolfgang Streeck *MPIfG Working Paper 09/15*, 2009c
- “Unfälle und Unerwartetes erwarten” with Wolfgang Streeck, *Handelsblatt*, November 20, 2009d
- “Idiosyncratic Paradigms and the Revival of the Superorganism”, co-authored with Robert E. Page, Jr., *Report NR. 26/92 of the Research Group on Biological Foundations of Human Culture*, Bielefeld, Germany, 1992

## AWARDS AND HONORS

- 2019, Distinguished Professor, University of Pittsburgh
- 2014, Medal of the Università Campus Bio-Medico di Roma
- 2013, Distinguished Alumni Award, Pitzer College

## INVITED TALKS/CONFERENCE PARTICIPATION

### 2021-

- MIT Workshop on Complexity Theory, Social Ontology and Social Change, Keynote Lecture: “Complexity, Perspectivism and Pragmatist Realism”, October 6-7, 2023.
- American Philosophical Association (Pacific Division) Meeting, “Inconsistent models and unstable phenomena” Author-Meets-Critics for M. Massimi *Perspectival Realism*, San Francisco, CA, April 6, 2023
- Univ. Pittsburgh Humanities Center Comment on Lorraine Daston, draft book *Imagining the*

Scientific Community: A History, February 10, 2023.

PhilBioInMed Conference, “AlphaFold and RoseTTAFold: Does AI solve the “problem of protein structure prediction” for biology and medicine? jointly with Angela Gronenborn. Pittsburgh, PA November 14, 2022.

PSA Public Forum “Community-Led Public Health” moderator, Philosophy of Science Association Biennial Meeting, Pittsburgh PA November 10, 2022.

Instruct-ERIC online training course: Instruct-ing Structural Biologists Towards Integration, “Why integration can provide more accurate models of nature”, (zoom) July 21, 2022

Conceptual Engineering Series, “Are Emergent Phenomena Real?”, St. Andrews and Zurich, May 5, 2022.

Konrad Lorentz Institute Colloquium, “Through the Fractured Looking Glass” September 26, 2022.

Lullius Lectures. “From Scientific Complexity to Epistemic Pluralism” November 16, 2021 and “From Representational Perspectivism to Pragmatic Realism”, Salamanca, Spain, November 17, 2021.

ISHPSSB Biennial Meeting (zoom), “What (and how) can we learn from divergent experimental results?”, July 13-21, 2021.

MetaScience Conference, “Keynote Lecture: Are Emergent Phenomena Real?”, University of Bristol, UK (zoom), June, 15, 2021.

Policy Analysis for Complex Systems Speaker Series, “Integrative Pluralism: A discussion of Science, Complexity and Policy”, Rand Corporation, May 26, 2021

Metaphysics from a Human Point of View Conference “Experimental Evidence for the Reality of Emergent Entities”, University of Edinburgh, April 26-28, 2021. Online meeting.

Science Revealed 2021: Public Lecture Series, “What data can and cannot tell us”, University of Pittsburgh, April 15, 2020. <https://www.as.pitt.edu/sciencerevealed>

Online Pandemic Forum, “Sources of Model Uncertainty and Implications for Effective Policy”, George Mason University, April 2, 2021.

Perspectival Meeting: Sandy Mitchell, Michela Massimi, Evandro Agazzi in dialogue, January 14-15, 2021, Campus Bio-Medico, Rome. Online meeting.

## **2010-2020**

VentureThinking online conference ENVISIONING VENTURES : IL FUTURO DEI SISTEMI COMPLESSI (my presentation was dubbed into Italian), May 2, 2020

AAAS Annual Meeting, Symposium on Lobbying for Evidence, “How evidence gets deformed”, February 15, 2020

*Conference: Rethinking Emergence*, University of Lisbon, “Challenges for a bottom-up approach to the reality of emergent phenomena” October 2019

*16<sup>th</sup> International Congress of Logic, Methodology and Philosophy of Science and Technology*, Prague, Keynote Lecture “Integrating Perspectives: Learning from Model Divergence” August 2019

Distinguished Professor *Inaugural Lecture*, University of Pittsburgh “Through the Fractured Looking Glass: The Epistemic Value of Diversity” April 4, 2019

Department of Social and Decision Sciences *Lecture Series*, Carnegie Mellon University, “How the Sciences of Complexity Change our View of Knowledge”, March 1, 2019

Philosophy of Science Association Presidential Address “Through the Fractured Looking Glass”, November 3, 2018. PSA Biennial Meeting, Seattle, Washington.

Pittsburgh Summer Program: “Why is Biology different from Physics, July 18, 2018.

Workshop: *Philosophy of Biology Meeting Social Studies of Science*, University of Edinburgh, “Instrumental Perspectivism: Is AI Machine Learning Like NMR Spectroscopy?” May 31, 2018.

Lunchtime talk, Center for the Philosophy of Science: “Instrumental Perspectivism: Is AI Machine Learning Like NMR Spectroscopy?” University of Pittsburgh, April 10, 2018.

PI Academy Colloquium “Perspectivism: Learning from Model Divergence” Oakland University, Michigan, , March 29, 2018.

Experts Meeting: *Will Science Remain Human?* “Unsimple Truths: Multiple Perspectives and Integrative Strategies” Campus Bio-Medico, Rome, March 5-6, 2018.

Symposium: “Perspectivism, Pluralism and Pragmatism: Lessons from Protein Science”, Symposium Frontier in the Philosophy of Specific Sciences, Tsinghua University August 19-20, 2017

Summer School, Epistemological Issues in Scientific Experiment, Tsinghua University, Beijing, China, August 14-18, 2017

Pittsburgh Summer Program: “Why is Biology different from Physics, July 10, 2017

Invited Symposium Lecture: “The Epistemology and Ontology of Complexity”, 2017 APA Eastern Division Meeting, Baltimore, MD, January 5, 2017

Symposium: “From Solitary to Social: The Necessity of Collaborative Science” The Spirit of the Hive: Mechanisms of Social Evolution, symposium in Honor of Robert E. Page, Jr., Arizona State University, December 13, 2016

Carl Friedrich von Weizsäcker Lectures 2016: “Through the Fractured Looking Glass: Scientific

Perspectives of Nature”, University of Hamburg, November 21-25, 2016

- “Through the Fractured Looking Glass: Scientific Perspectives of Nature”, November 21
- “Model-Model Relationships: Integrative Pluralism” November 22
- “Counterfactuals, Constitutive, Contingent and Conceptual Components” November 23
- “Models of Data: Production and Evidence” November 24
- “Evolved, Adaptive Systems: A Case for Contingent Metaphysics” November 25

Workshop: “Multiple perspectives and model/model integration” Phil-Bio meets Social Studies of the BioSciences, University of Edinburgh of June 7, 2016

Workshop: Context Matters: Understanding How the System Works, Durham University May 26, 2016

Invited Lecture: “Perspectives, Representation and Model Pluralism”, Royal Institute of Philosophy Lecture, University of Durham, May 25, 2016

Invited Lecture: Ohio University History and Philosophy of Science Series, 2016  
 “Perspectivism, Pluralism and Pragmatism: Lessons from Protein Science”, April 1

Invited Lecture: Quo Vadis Science? Campus Bio-Medico, Rome, Italy 2016  
 “Beyond Simplicity: Integrating Knowledge in a Complex World”, March 4

Invited Lecture: Gran Sasso Science Institute, L’Aquila, Italy, “Unsimple Truths: How Complexity Changes our view of Nature and Science”, February 28, 2016

Graduate Master Classes, Gran Sasso Science Institute, L’Aquila, Italy, 2016  
 “Emergence and Robustness”, February 29  
 “Case Studies and Complexity in Policy”, March 2  
 “Perspectivism”, March 3

Workshop: “Robustness in contemporary science and philosophy”, Robustness in Neurological Systems, Center for the Philosophy of Science, University of Pittsburgh, November 13, 2015

Conference: Hempel and Beyond, September 18-19, University of Cologne, Germany, 2015  
 “Perspectives, Representation and Integration”, September 19

Conference: International Society for History, Philosophy, and Social Science of Biology Biennial Meeting, July 5-July 10, University of Quebec in Montreal, Canada, 2015  
 “Robustness and Emergence: Explainable Novelty”, June 6

Workshop: Pragmatism at the intersection of Metaphysics and Philosophy of Science, Centre for the Study of Mind in Nature, University of Oslo, Oslo, Norway, 2015  
 “Perspectivism, Pluralism and Pragmatism: Lessons from Protein Science” June 5

Graduate Master Class, University College London 2015  
 “Emergence: logical, functional and dynamical”, May 29

Invited Public Lecture: University College London, 2015  
 “Partial and Perspectival: Arguments for Model Pluralism”, May 28

Workshop: Bogenfest, A workshop in Honor of Jim Bogen, Center for Philosophy of Science, University of Pittsburgh, 2015  
 “Multiple Empirical Models: How Integration Helps” March 28

Invited lecture: Science and Society Group, Arizona State University, Tempe, AZ 2015  
 “Why After 50 Years are Protein X-ray Crystallographers Still in Business? March 3

Conference: Symposium on Perspectivism, Philosophy of Science Association, Biennial Meeting, Chicago, IL, 2014  
 “Perspectives, Representation, and Integration” November 6-9

Workshop: Emergence and Reduction in Science, Institute for History and Philosophy of Sciences and Technology, Paris, France, 2014  
 “Robustness and Emergence” October 23-25

Workshop: Interdisciplinary Workshop on Robustness in Biological Systems, Campus Bio-Medico, Rome, Italy 2014  
 “Challenges of Robustness for Causal Explanation” October 14-16



Public Lecture: The Royal Institution, London, UK, 2014  
 “Unsimple Truths: How Biological Complexity Changes our view of Nature and Science” June 10

Workshop: Carnegie Cognitive Astrophysics Workshop, Lake Arrowhead, CA, 2014  
 “Complexity and Integrative Pluralism” May 15

Workshop: New Directions for a Pragmatic Metaphysics for the Philosophy of Science, Simon Fraser University, Vancouver, Canada, 2014  
 “Pragmatic Laws: challenges for ‘mere correlations’ and ‘literal counterfactuals’” April 24-26

Invited lecture: Stanford Graduate School of Education, 2014  
 “Beyond Simplicity: Integrating Knowledge in a Complex World” January 16

Invited lecture: Stanford Complexity Group, Stanford University, California, 2014  
 “Representation, Partiality and Pragmatism or, Why after 50 years are X-ray Crystallographers Still in Business” January 15

Invited lecture: Education’s Digital Futures, Stanford Graduate School of Education, 2014  
 “Teaching and Learning as Complex Systems” January 14

Invited lecture: Università Campus Bio-Medico di Roma, Italy, 2013  
 “Biological Complexity and Integrative Pluralism” December 16

Invited lecture, Honors College, University of Pittsburgh, 2013  
 “What is a biological function? What does it explain?” November 8

Invited lecture: Department of Philosophy Lecture Series, University of Connecticut, 2013  
 “Representation, Partiality and Pragmatism or, Why after 50 years are X-ray Crystallographers Still in Business” October 18

Invited lecture: Pitzer College, Claremont, California, 2013  
 “Representation, Partiality and Pragmatism or, Why after 50 years are X-ray Crystallographers Still in Business” September 26

Conference: International Society for the History, Philosophy and Social Studies of Biology, Montpellier, France, 2013  
 “Relations of Models of Protein Folding” July 11

Keynote Lecture: British Society for the Philosophy of Science Annual Meeting, Exeter, 2013  
 “Representation, Partiality and Pragmatism” July 5

Symposium: Laws in the Life Science, American Philosophical Association, Eastern Division Annual Meeting, Atlanta, Georgia 2012  
 “Physical and Biological Laws: A Difference Of Degree” December 28

Conference: Between Biology and Physics: Reduction, Emergence and Complexity, The Van Leer Jerusalem Institute, Tel Aviv and Jerusalem, Israel 2012  
 “Physical and Biological Laws – A Difference of Degree” December 17-20

Symposium: Molecules, Organisms, Systems: Developing a Multi-level Integrated Insights Into Biological Processes, Philosophy of Science Association Biennial Meeting, 2012  
 “Integrative Strategies in Explanations of Protein Folding” November 13-15

49th University of Cincinnati Philosophy Colloquium: Socially Engaged Philosophy of Science, University of Cincinnati, 2012  
 “GMOS and Policy in a Complex, Diverse World” October 11-13

Workshop: Causation And Laws In The Special Sciences: Metaphysical Foundations,

University of Konstanz, Germany, 2012  
 “Biological laws: contingency and stability” September 21-22  
 Conference: Evidence and Causality in the Sciences, University of Kent, Canterbury, UK,  
 2012 “Evidence of Complex Causes” September 5-7  
 Invited lecture, Industry Studies Association Annual Meeting, Pittsburgh, PA,  
 2012 “When (and Why) Context Matters” May 30  
 Philosophy Department Lecture Series, University of Sydney, Australia,  
 2012 “Emergence” May 9  
 Conference on Integration in Biology and Medicine” University of Sydney, Australia,  
 2012 “Explanatory integration and integrative pluralism” May 3  
 Invited lecture: Committee on the Conceptual Foundations of Science Lecture Series.  
 University of Chicago, 2012  
 “Representation Pluralism: the Case of Protein Folding”  
 April 6 Invited lecture: Philosophy Department Lecture Series, University of California, San  
 Diego, 2012  
 “Integrative Pluralism: The case of Protein Folding” March 4  
 American Association for the Advancement of Science, Annual Meeting, Vancouver, Canada,  
 2012  
 “GMOs and Policy in a Complex World” February 16-20  
 Workshop: Working Group on Institutional Change, Max Planck Institute for the Study of  
 Societies, Cologne, Germany, 2012  
 “Evolution and Social Science” January 20-21  
  
 Workshop on Reasoning with Cases in the Social Sciences, Center for the Philosophy of  
 Science, University of Pittsburgh, 2011  
 “Why Context Matters” November 11  
 Lecture Series, Center for the Philosophy of Science, University of Pittsburgh, 2011  
 “Integrative Pluralism: The case of Protein Folding” November 4  
 Lecture Series, Rotman Institute of Philosophy, University of Western Ontario 2011  
 “GMOs and Policy in a Complex World” September 30  
 Workshop: Integration in contemporary biology: philosophical perspectives on the dynamics of  
 interdisciplinarity, University of Minnesota 2011  
 “Integrative Pluralism: The case of Protein Folding” September 24  
 Biennial meeting of the International Society for the History, Philosophy and Social Studies of  
 Biology, University of Utah, 2011  
 “Integrative Pluralism: The case of Protein Folding” July 14  
 Philosophy Department Colloquium Series, University of Cologne, 2011  
 “Integrative Pluralism: The case of Protein Folding” July 6  
 Keynote Lecture, Society for the Philosophy of Science in Practice, Exeter, UK 2011  
 “Integrative Pluralism: The case of Protein Folding” June 24  
 Philosophy Department Lecture, London School of Economics, UK, 2011  
 “Integrative Pluralism: The case of Protein Folding” June 20  
 Les Mécaniciens: Salon des Refusés, Center for Philosophy of Science, University of  
 Pittsburgh, 2011  
 “Causes, Regularity and Context” April 9  
 Inaugural public lecture, Institute for Values in Science and Policy, Simon Fraser

University, Vancouver, Canada 2011  
“Policy in the face of complexity and deep uncertainty: Genetically Modified Organisms” March 9

Keynote speaker at First European Advanced Seminar in the Philosophy of the Life Sciences, Causation and Disease in the Postgenomic Era, Brocher Foundation, Geneva, Switzerland 2010  
“Philosophical Reflections on Robustness and Gene-Environment Interaction in Complex Disease” September 11

Philosophy Colloquium, University of Bielefeld, 2010  
“Policy in the face of complexity and deep uncertainty” May 19

Center for Cultural Analysis, Rutgers University, 2010  
Seminar on Evidence and Explanation in Science and the Arts April 21

Gordon Conference: Genes and Behavior. Ventura, California, 2010 Participant March 14-19

University of Calgary Philosophy Colloquium Series, 2010  
“Emergence: Philosophy Meets Science” March 5

Mini-workshop on Unsimple Truths: Science, Complexity and Policy, Center for Philosophy of Science, University of Pittsburgh, 2010  
“Response to Critics” February 3

### **2000-2009**

Pitt-Paris II: Emergence and Reduction in the Sciences Workshop, Center for Philosophy of Science, University of Pittsburgh, 2009  
“Dynamic Emergence” December 11-13

Philosophy of Science Biennial Meeting, Pittsburgh, PA 2009  
(Organizer and chair) “Philosophy of Science in the Public Domain, Bending Science: Legal, Historical, and Philosophical Concerns” November 7

Philosophy of Science Biennial Meeting, Pittsburgh, PA 2009  
“How to Represent, and Act in Contexts of Deep Uncertainty” November 7

Darwin in the 21st Century Conference, John J. Reilly Center for Science, Technology, and Values and the Science, Theology, and the Ontological Quest (STOQ) Project, University of Notre Dame, 2009  
”Evolution and the Mechanisms of Complexity” November 1-3

Peterfest: A Workshop in Honor of Peter Machamer, Center for Philosophy of Science, University of Pittsburgh, 2009  
“Pragmatic Laws and Mechanisms” October 24

International Society for the History, Philosophy and Social Studies of Science, Brisbane, Australia, 2009  
“Emergence: Logical, Functional and Scientific” July 12-15

Workshop on Causality in Complex Networks, Australian Office of Defense, Mt. Tamborine, Queensland, 2009  
“Causality in Genetic Regulatory Networks” July 6-10

Public Lecture, San Sebastian Aquarium, San Sebastian, Spain  
2009 “Darwin and Complexity” May 22

Conference on Open Questions in the Origin of Life, San Sebastian, Spain,

2009 “Contingency vs. Necessity: a False Dichotomy” May 19-23  
 The Program in History & Philosophy of Science & Technology, Stanford University, Palo Alto, CA., 2009

“Emergence: Between Science and Philosophy” April 16  
 AAAS Annual Meeting, Chicago, IL. 2009

“Ineliminable Uncertainty and Challenges to Policy” February 15  
 Deutsch-Amerikanisches Institut in Heidelberg,  
 Germany, 2008

“Beyond Simplicity” October 19  
 Gordon Conference on “Genes and Behavior”, Il Ciocco Lucca (Barga), Italy, 2008

Participant, February 24-29  
 University of Gent, Belgium 2008

“Emergence and Function” March 14  
 Seminar Series, Sloan Foundation, New York, 2008

“The Different Roles of Context in Science” March 31  
 9th Course of the International School on Complexity, Erice, Sicily, 2008

“Emergence in the physical and biological world: A notion in search of clarification”  
 April 12-16  
 Press Conference, Suhrkamp Verlag, Berlin, Germany, May 15, 2008,  
 Invited Lecture “Beyond Simplicity” Research Seminar, Witten-Herdecke University, Witten,  
 Germany, May 19, 2008.

Lecture “Emergence: Between Science and Philosophy” Forum Scientiarum der Universität  
 Tübingen, June 3, 2008

Invited speaker “Adaptation and Complexity”, for conference:, Joint Conference on  
 Adaptationism in Biology and Psychology sponsored by Institut d'histoire et de  
 philosophie des sciences et des technique and HPS and Center for Philosophy of  
 Science, University of Pittsburgh. Paris, France June 4-5, 2008.

Invited speaker, Workshop, “Philosophy of Science and Evidence-Based Policy”, June 27-28,  
 2008, Virginia Tech University.

Invited commentator, Conference “What (Good) is Historical Epistemology”, July 24-26, 2008,  
 Max Planck Institute fur Wissenschaftsgeschichte, Berlin, Germany.

Lecture Series/Graduate Summer School, “Lectures in Philosophy of Biology”, Tsinghua  
 University, Beijing, China, August 18-22, 2008.

Invited Keynote Speaker at Conference “Data - Phenomena - Theories: What’s the notion of a  
 scientific phenomenon good for?” University of Heidelberg, Germany, September 11-  
 13,  
 2008.

Invited lecture, “Beyond Simplicity”, Mt. Holyoke College, Massachusetts October 3,  
 2008, Discussion of my paper “Emergence” at The Five College Consortium in  
 Philosophy (Mt. Holyoke, Amherst College, Hampshire College, Smith College,  
 UMass Amherst) October 4, 2008

Organizer and speaker: “Emergence: Philosophy Meets Science” in the Chicago Humanities  
 Festival, October 11, 2008

## **1990-1999**

Lunchtime Lecture, Center for the Philosophy of Science, University of Pittsburgh,

1999 "Pluralism and Complexity" September 28  
Lecture, Department of History and Philosophy of Science, University of Pittsburgh,  
1999 "Dimensions of Scientific Law" April 15  
Debating Essentialism: 9th Annual Philosophy Conference, UC Riverside,  
1999 "Essentialism and the Evolution of Language" March 25

American Philosophical Association, Eastern Division Meeting, Washington, D.C.,  
1998 "Dimensions of Scientific Law" December 29  
San Diego Women's Center Forum, University of California, La Jolla, California, 1998  
"Is there a "Female/Feminist" Way to do Science?" May 19  
10<sup>th</sup> Anniversary Conference, Humanities Research Institute, UC Irvine, 1998  
"Shifting Standards of Assertability in Science and Policy" April 2  
*Understanding the Practices of Science Conference*, Science Studies Conference, University of  
California, San Diego, La Jolla, California, 1998  
"Scientific Controversies and Their Resolution" March 6  
Southern California Philosophy Conference, Irvine, California, 1997  
"Pragmatic Laws" October 10  
Philosophy Department Colloquium Series, UC Riverside, California, 1997  
"Pragmatic Laws" May 21  
The Center for the Philosophy of the Natural and Social Sciences, Colloquium Series, London  
School of Economics, London, England, 1997  
"Pragmatic Laws" March 24  
Philosophy Department Colloquium Series, UC San Diego, La Jolla, California,  
1997 "Pragmatic Laws" January 7  
Philosophy of Science Association Biennial Meetings, Cleveland, Ohio, 1996  
"Pragmatic Laws" November 3  
Symposium on "The Evolution of Social Insects" at the International Congress for Systematics  
and Evolutionary Biology V, Budapest, Hungary,  
1996 "Forms of Complexity" August 19  
Philosophy Department Colloquium Series, University of South Florida, Tampa,  
1996 "Biological Complexity and Theoretical Pluralism" April 12  
Philosophy Colloquium Series, California Institute of Technology, Pasadena,  
1996 "Biological Complexity and Theoretical Pluralism" February 23

A.R. Louch Workshop, Claremont Graduate School,  
California, 1995  
"Evolutionary Biology and Human Culture" November 17  
Alumni Lecture, Department of History and Philosophy of Science, University of  
Pittsburgh, Pittsburgh, Pennsylvania, 1995  
"Biological Complexity and Theoretical Pluralism" October 20  
Science Studies Colloquium, UC San Diego, La Jolla, California, 1995  
"Biodiversity: Science and Policy" September 21  
International Society for the History, Philosophy, and Social Studies of Biology, Louvain,  
Belgium, 1995  
"Complexity and Pluralism" July 18  
Minnesota Center for the Philosophy of Science Colloquium Series, Minneapolis, Minnesota,  
1995

"Biological Complexity and Theoretical Pluralism" April 21  
 American Philosophical Association, Pacific Division Meetings, San Francisco, California, 1995

"Dupre's *The Disorder of Things*" April 1  
 The Center for the Philosophy of the Natural and Social Sciences, London School of Economics  
 Workshop: Biodiversity: Philosophical, Biological and Social Scientific Perspectives, London, England, 1995

"Biodiversity: Science, Policy and Ethics" March 3  
 Philosophy Colloquium, Hamburg University, Hamburg, Germany, 1994  
 "The Disunity of Science" May 21  
 Workshop on Global Governance: The Natural Science Paradigm, Centre for the Study of Global Governance, London School of Economics, London, England, 1994  
 Discussant May 6

Einstein Forum Conference on Komplexitäten, Potsdam, Germany, 1994  
 "Complexity and Pluralism" April 22  
 Schwerpunktforschung Wissenschaftsgeschichte und Wissenschaftstheorie, Berlin, Germany, 1994

"Pluralism in Biology" March 25  
 Science Studies Colloquium, Trondheim University, Trondheim, Norway, 1994  
 "Pluralism in Biology" March 7

Science Studies Colloquium, Oslo University, Oslo, Norway, 1994  
 "Pluralism in Biology" March 4

Philosophy Department Colloquium, Frei Universität, Berlin, Germany, 1994  
 "Fitness, Function, and Disposition" January 13

American Society of Entomologists, Annual Meeting, Baltimore, Maryland, 1993  
 "Integrating Systems: Superorganism and Social Insects" December 27

International Society for the History, Philosophy, and Social Studies of Biology, Brandeis, Massachusetts, 1993  
 "Types of Pluralism" July 15

Biology and the Social Sciences Conference, London School of Economics, England, 1993  
 "Adaptation in Biology and Anthropology" June 24

Southern California Philosophy of Science Meeting, Solana Beach, California, 1993  
 "Function, Fitness and Disposition" June 10

Cincinnati Annual Philosophy Colloquium, Cincinnati, Ohio, 1993  
 "Evolution and Development: The Superorganism" May 22

Philosophy Colloquium, Arizona State University, Tempe, Arizona, 1993  
 "Function, Fitness and Disposition" March 10

*Dibner Institute in the History of Science Summer Workshop: "Individuality – Understanding Units and Levels of Organization in Biology"*, Marine Biology Laboratory, Woods Hole, Massachusetts, 1992  
 "Units and Levels of Organization: a Philosophical Approach" and  
 "Superorganism in Historical and Contemporary Contexts" August 2-9  
*Research Group in Science Studies*, University of Bielefeld, Bielefeld, Germany,

1992 "Superorganisms, Biological and Historical Critique" July 7  
*Biologisches Kolloquium*, University of Bielefeld, Bielefeld, Germany,

1992 "The Superorganism in Biology" July 1  
 Conference on *The Transfer of Images and Metaphors Between Biology and the Social Sciences*, Zentrum Fur Interdisziplinare Forschung, Bielefeld, Germany, 1992

"Superorganism: Then and Now" June 24  
*Beijing International Conference on Philosophy of Science: Realism and Antirealism*, Beijing, China, 1992

"Types of Pluralism" June 15  
*Institute fur Wissenschaftsgeschichte*, Der Georg-August-Universitat, Goettingen, Germany, 1992

"Metaphors and Theories: The Revival of Superorganism Theory in American Biology"  
 May 26  
 Zentrum fur Interdisziplinare Forschung Public Colloquium Series, Bielefeld, Germany 1992

"The Superorganism Metaphor for Social Insects" May 21  
 Philosophy Department Colloquium Series, UC San Diego, La Jolla, California, 1992

"Fitness, Functions and Dispositions" April 3  
 Philosophy Department Colloquium, The London School of Economics and Political Science, London, England, 1992

"Fitness, Functions and Dispositions" March 10  
 Department of Philosophy Colloquium Series, University of Bielefeld, Bielefeld, Germany, 1991

"Fitness, Functions and Dispositions" December 3  
 Conference on The Biological Basis of Human Culture, Zentrum fur Interdisziplinare Forschung, University of Bielefeld, Bielefeld, Germany, 1991

"Metaphysics in Scientific Context: Superorganism Theory" May 2  
 Author, Helen Longino, meets critics symposium, American Philosophical Association, Pacific Division Meetings, San Francisco, 1991

"Contextual Knowledge" March 28  
 Symposium on Development and Macroevolution, *Annual Meeting of American Society of Zoologists*, San Antonio, Texas, 1990

"The Argument from Homology" December 29  
 Department of Biology, *University of Freiburg*, Freiburg, Germany, 1990

"On Integrating Explanations in Evolutionary and Developmental Biology" December 3  
 Conference on The Biological Basis of Human Culture, *Zentrum fur Interdisziplinare Forschung*, University of Bielefeld, Bielefeld, Germany, 1990

"On Integrating Explanations in Evolutionary and Developmental Biology" November 26  
 Philosophy Consortium, *The Claremont Colleges*, Claremont, California, 1990

"Biological Categories: Rape in Humans and other Species" April 19  
*American Philosophical Association*, Pacific Division Meetings, Los Angeles, California, 1990

"Are Species Individuals" March 29

## **1980-1989**

- Philosophy Department Colloquium, University of Colorado, Boulder, Colorado,  
1989 "Functions, Fitness and Dispositions" February 2
- Biology Department Colloquium, Kenyon College, Kenyon, Ohio,  
1989 "Functions, Fitness and Dispositions" March 16
- Human Biology and Anthropology Seminar, Stanford University, Palo Alto, California,  
1988 "Functional Complementarity: Explanations in Biology and Cultural  
Anthropology" December 2
- History and Philosophy of Science Seminar, Stanford University, Palo Alto, California, 1988  
"Functions, Fitness and Dispositions" November 10
- Institut für Biologie III Colloquium, Albert-Ludwigs-Universität Freiburg, Germany, 1988  
"Causal Models in Explanations in Evolutionary Biology" September 1
- Philosophy Department Colloquium, The Free University of Amsterdam, Amsterdam, Holland,  
1988  
"Issues in Comparative Analysis: The Case of Biological Rape" August 30
- XVIII World Philosophical Congress, Brighton, England, 1988  
"Biological and Cultural Constraints - A Question of Explanatory Priority" August 22
- Philosophy Department Colloquium, Rutgers University, New Brunswick, New Jersey,  
1988  
"The Causal Background of Functional Explanations" April 21
- Philosophy of Science Conference, The Inter-University Centre of Postgraduate  
Studies, Dubrovnik, Yugoslavia, 1988  
"The Causal Background of Functional Explanations" April 4 - 15
- Entomology Department Colloquium, The Ohio State University, Columbus Ohio, 1988  
"Natural Selection: Causal Process and Evolutionary Consequences" March 1
- Philosophy Round Table, The College of Wooster, Wooster, Ohio, 1988  
"Rape in Scorpion Flies and Humans" February 9
- VIII International Congress of Logic, Methodology and Philosophy of Science, Section  
IX: Foundations of Biological Sciences, Moscow, U.S.S.R., 1987  
"Are Sociobiological Adaptation Explanations Legitimate?" August 17-22
- Ohio State Logic Colloquium, Columbus, Ohio, 1986  
"Can Sociobiology Adapt to the Presence of Cultural Selection?" October 24
- Philosophy of Science Association Biennial Meeting, Pittsburgh, Pennsylvania, 1986  
"Can Sociobiology Adapt to the Presence of Cultural Selection?" October 14
- American Philosophical Association, Pacific Division, Los Angeles, California, 1986  
"Levels of Selection and Molecular Genetics" (comments on paper by John  
Campbell) March 27
- Philosophy Colloquium, Pitzer College, Claremont, California  
1985 "Natural Selection - a Two-Step Process" April 19



## **SERVICE TO THE PROFESSION**

### **Professional Organizations**

International Science Council

2023-2027: Appointed Member, Committee for Science Planning

International Union of History and Philosophy of Science and Technology

2024-2028: Elected First Vice President of the Division for Logic, Methodology and Philosophy of Science and Technology

American Association for the Advancement of Science

2016: Elected Fellow

2012-2018: Scientific Program Committee for Annual Meetings

2011-2015: Member-at-Large, Section L: History and Philosophy of Science

2012: Symposium Organizer “Global Knowledge: The Challenge of Diversity and Localism” Vancouver, BC, Canada

National Science Foundation

2004: Committee of Visitors, Science and Technology Studies

1997-2000: Proposal Review Panel, Science and Technology Studies

Philosophy of Science Association

2019-2021: Past President

2016-2018: President (elected)

2013-2014: Founding co-director, Joint Caucus for Socially Engaged Philosophers and Historians of Science

2007-2011: Governing Board Member (elected)

2004-2006 Committee on Restructuring

2002: Program Chair, Biennial Meeting

1998-2002: Governing Board Member (elected)

1994-1996: Nominating Committee, (elected)

International Society for the History, Philosophy and Social Studies of Biology,

2005-2009: Governing Board (elected)

1993-1994: Nominating Committee (appointed)

1995: Symposium Organizer “Complexity and Biology” Louvain, Belgium

American Council of Learned Societies

2008: Dissertation Completion Grant Review Panel

### **Editorial Boards**

2019-present: *Philosophy Plus Science*

2017-present: *Biology and Philosophy*

2011-2019: *New Directions in the Philosophy of Science*, series Palgrave MacMillan  
2006-2015: *The Pluralist*  
2008-2012: *History and Philosophy of the Life Sciences*  
1994-2002, 2004-present: *Philosophy of Science*

### **Journal Referee**

*Philosophy of Science, Biology and Philosophy, Journal for Theoretical Biology, BioScience, British Journal for the Philosophy of Science, ISIS, Evolution and Human Behavior*

### **University of Pittsburgh Service**

Search Committee: Senior Vice Chancellor for Research, 2016-present  
Dietrich School Diversity Committee, 2013-2015  
Provost's Advisory Committee on Women's Concerns, 2011-2014  
Organizing Committee: Provost's Chairs Retreat, 2011  
Industry and University Projects Development Committee, 2006-2007  
Carnap Archive Committee, University of Pittsburgh Library, 2005-2015  
Humanities Council, 2005-2015 Tenure Council, 2003-2005  
Committee on Academic Integrity, 2000-2002

Department Chair, Department of History and Philosophy of Science, 2005-2018  
Coordinator, Graduate Teaching Practicum, Department of History and Philosophy of Science, 2016-2018.  
Chair of Search Committee, Department of History and Philosophy of Science 2002-2003 and 2004-2005  
Director of Graduate Studies, Department of History and Philosophy of Science 2001-2002, 2003-2004

Associate Director, Center for Philosophy of Science, 2000-2004  
Advisory Board, Center for Philosophy of Science, 2005-present

### **Workshop/Summer School Organization**

Co-Organizer: Workshop on Philosophy of Science: the Pragmatic Alternative, Center for the Philosophy of Science, University of Pittsburgh, April 21-22, 2017.  
Co-Organizer: Workshop on Robustness in Neurological Systems, Center for the Philosophy of Science, University of Pittsburgh, November 13, 2015  
Co-Organizer "Workshop on Reasoning with Cases in the Social Sciences," Center for the Philosophy of Science, University of Pittsburgh, November 11-12, 2011  
Organizer "Mini-workshop on Sandra Mitchell's Unsimple Truths: Science, Complexity and Policy, February 2010  
Organizer "Workshop on Elliot Sober's Evidence and Evolution, March 2007  
Organizing Committee, 7th Meeting of the Pittsburgh-Konstanz Colloquium  
Topic: Causation: Historical and Contemporary Perspectives: Konstanz, Germany, : May

- 25-29, 2005
- Co-Organizer “Philosophy of Science: The Pragmatic Alternative,” Center for the Philosophy of Science, University of Pittsburgh April 21-22, 2017
- Co-Organizer “Workshop on Robustness in Biological Systems,” Campus Bio-Medico, Rome, October 14-16, 2014
- Co-Organizer “Complexity and Integrative Pluralism” Workshop: New Directions for a Pragmatic Metaphysics for the Philosophy of Science, Simon Fraser University, Vancouver, Canada, May 2014
- Co-Organizer “Workshop on Reasoning with Cases in the Social Sciences,” Center for the Philosophy of Science, University of Pittsburgh, November 11-12, 2011
- Organizing committee of MIDAS/Center for Philosophy of Science conference on modeling and simulation: April 1-3, 2011
- Organizer: “Mini-workshop on Sandra Mitchell’s Unsimple Truths: Science, Complexity and Policy, Center for the Philosophy of Science, Pittsburgh, February 2010
- Organizer: Emergence: “Between Science and Philosophy” Chicago Humanities Festival, October 11, 2008
- Organizer “Workshop on Elliott Sober’s Evidence and Evolution, Center for the Philosophy of Science, March 2007
- Organizer: Symposium on “Exporting Causal Knowledge in Biology, Philosophy of Science Association Biennial Meetings, Vancouver, BC November 2006
- Organizing Committee, 7th Meeting of the Pittsburgh-Konstanz Colloquium, Causation: Historical and Contemporary Perspectives: Konstanz, Germany, May 25-29, 2005
- Organizer/Instructor Max Planck Institute for the Study of Societies, Cologne, Germany,
- Summer School “Philosophy of Social Science”, June 14 – June 25, 200
- Co-organized NEH funded 5-week summers school “Science and Values” University of Pittsburgh.
- Co-Organizer "Modeling complexity across levels: social insect societies as multilevel integrated systems." NSF funded workshop at The Santa Fe Institute, May 22-26, 2002
- Co-Organizer Symposium on “The Evolution of Social Insects” at the International Congress for Systematics and Evolutionary Biology V, Budapest, Hungary, August 19, 1996
- Organizer The Center for the Philosophy of the Natural and Social Sciences, London School of Economics Workshop: Biodiversity: Philosophical, Biological and Social Scientific Perspectives, London, England, March 3, 1995
- Co-Organizer Dibner Institute in the History of Science Summer Workshop, "Individuality - Understanding Units and Levels of Organization in Biology", Marine Biology Laboratory, Woods Hole, Massachusetts, August 2-9, 1992

### **Other Service**

- Co-organizer: Popup Idea Kitchens (interdisciplinary graduate student discussion group) University of Pittsburgh 2018-19

Co-Developer, Instant HPS, short video “[Is Race Real](#)”

Co-Developer, Instant HPS, short video “[Epigenetics: Beyond Nature and Nurture](#)”