LEAH HENDERSON

CURRICULUM VITAE

November 2016

University of Groningen
Faculty of Philosophy
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CURRENT POSITION

University of Groningen, The Netherlands
Assistant Professor and Rosalind Franklin Fellow, Faculty of Philosophy and University College Groningen. August 2015 – present.

Academic Director of the Core Programme, University College Groningen. March 2016 – present.

EDUCATION

Massachusetts Institute of Technology, USA
PhD in Philosophy. 9/2003-9/2010
Thesis title: 'Framework theories in Science'.
Committee: Robert Stalnaker (chair), Roger White, Agustín Rayo, Joshua Tenenbaum.

University of Oxford, United Kingdom
DPhil in Physics. 10/1997-12/2000
Thesis title: 'Quantum entanglement and classical information'.
Supervisors: Artur Ekert and Vlatko Vedral.

University of Auckland, New Zealand
Master of Science (MSc) in Physics. First class honours. 2/1995–2/1997
Thesis title: 'The physical embedding of genetic coding'.
Supervisor: Peter Wills.

Bachelor of Science (BSc) in physics and mathematics. 2/1991–11/1994

EMPLOYMENT

University of Bristol, UK
Post-doctoral Researcher in quantum information theory. 2001-2

AWARDS AND SCHOLARSHIPS

- Veni grant awarded by NWO (Dutch Science Foundation) for project entitled 'Weighing Evidence Reliably', value: 250,000 euros, 2016 – 2019.

- Visiting Fellowship, Center for Philosophy of Science, University of Pittsburgh, Spring 2014.
- Massachusetts Institute of Technology Presidential Fellowship, 2003-2008.
- Rhodes Scholarship, 1997-2000.

PUBLICATIONS

- Leah Henderson (forthcoming). 'Global vs. local arguments for realism', Routledge Handbook on Scientific Realism, edited by Juha Saatsi.
- Leah Henderson (forthcoming). 'Bayesianism and Inference to the Best Explanation: the case of individual vs group selection in biology'. In volume on Explanationist themes in epistemology, Oxford University Press, edited by Ted Poston and Kevin McCain.
- Leah Henderson, (2015). 'The No Miracles Argument and the Base Rate Fallacy', *Synthese*.
- Leah Henderson (2014). 'Can the second law of thermodynamics be compatible with time-reversal-invariant dynamics?' *Studies in History and Philosophy of Modern Physics* 47, pp. 90-98.
- Leah Henderson (2014). 'Bayesianism and Inference to the Best Explanation'. *British Journal for the Philosophy of Science* 65, pp. 687-715.
- Leah Henderson (2010). 'Bayesian updating and information gain in quantum measurement', in *Philosophy of Quantum Information and Entanglement*, ed. A. Bokulich and G. Jaeger, Cambridge University Press (2010).
- Leah Henderson, Noah D. Goodman, Joshua B. Tenenbaum & James F. Woodward (2010). 'The Structure and Dynamics of Scientific Theories: A Hierarchical Bayesian Perspective'. *Philosophy of Science* 77 (2), pp.172-200.
- Leah Henderson (2003). 'The Von Neumann Entropy: A Reply to Shenker'. *British Journal for the Philosophy of Science* 54 (2), pp. 291-296.
- Matthew S. Leifer, Leah Henderson and Noah Linden (2003). 'Optimal entanglement generation from quantum operations'. *Physical Review A - Atomic, Molecular, and Optical Physics*, 67 (1), pp. 012306/1-012306/7.
- Leah Henderson (2002). 'Measuring quantum entanglement', in T. Placek and J. Butterfield (ed.) *Non-locality and Modality* (Kluwer Academic Press, Dordrecht), pp. 137-152.
- Jacob A. Dunningham, Sougato Bose, Leah Henderson, Vlatko Vedral, and Keith Burnett (2002). 'Entanglement concentration in Bose-Einstein condensates'. *Physical Review A - Atomic, Molecular, and Optical Physics*, 65 (6 A), pp. 643021-643024.
- Leah Henderson, Noah Linden, and Sandu Popescu (2001). 'Are all noisy quantum states obtained from pure ones?' *Physical Review Letters*, 87 (23), art. no. 237901, pp. 2379011-2379013.
- Leah Henderson and Vlatko Vedral (2001). 'Classical, quantum and total correlations'. *Journal of Physics A: Mathematical and General*, 34 (35), pp. 6899-6905.
- Leah Henderson, Lucien Hardy, and Vlatko Vedral (2000). 'Two-state teleportation'. *Physical Review A - Atomic, Molecular, and Optical Physics*, 61 (6), pp. 1-8.
- Leah Henderson and Vlatko Vedral (2000). 'Information, Relative Entropy of Entanglement, and Irreversibility'. *Physical Review Letters*, 84 (10), pp. 2263-2266.
- Richard Cleve, Artur Ekert, Leah Henderson, Chiara Macchiavello and Michele Mosca 'On quantum algorithms'. *Complexity* 4, 33 (1998).

INVITED ARTICLES IN PREPARATION

- 'The problem of induction'. Stanford Encyclopedia of Philosophy, edited by Edward N. Zalta.

INVITED PRESENTATIONS

- 'TBD', Workshop on 'Tatjana Afanassjewa and her legacy: new perspectives on irreversibility', Salzburg, Austria (forthcoming June 2017).
- Guest lecture on philosophy of physics, Honours College, University of Ghent, Belgium (2016).
- Invited panellist for Annual Philosophy of Physics Workshop, Rotman Institute and Western University, London, Ontario, Canada (2016).
- 'Rights and Wrongs of Best Systems', The MetaMetaphysical Club, Erasmus University, Rotterdam (2015).
- 'Bayesianism and Inference to the Best Explanation: the case of individual vs. group selection in biology', Orange Beach Epistemology Workshop (2015).
- 'Quantum Information Theory and the Quantum State', conference on 'Quantum Computation, Quantum Information and the Exact Sciences', Munich Center for Mathematical Philosophy, LMU, Munich, Germany (2015).
- 'Bayesianism and Inference to the Best Explanation', keynote speaker at 2nd conference on 'Inductive Logic and Confirmation in Science', Salt Lake City, Utah (2014).
- 'Reformulating quantum theory: is special relativity an example to follow?', Center for Philosophy of Science, University of Pittsburgh (2014).
- 'Can the second law be compatible with time reversal invariant dynamics?', conference on Irreversibility in axiomatic thermodynamics, University of Cambridge, UK (2013).
- 'Refomulating quantum theory: is special relativity an example to follow?', Relativity meets quantum theory workshop, London School of Economics, UK, (2013).
- 'Bayesianism and Inference to the Best Explanation', Tilburg Center for Logic, General Ethics and Philosophy of Science, University of Tilburg, The Netherlands (2013).
- Comments on Thomas Barrett's 'On the scope of the PBR theorem', Irvine-Pittsburgh-Princeton conference on the mathematical and conceptual foundations of physics, Pittsburgh (2013).
- 'The fair judge and the cruel realist', Center for Philosophy of Science, Pittsburgh (2011).
- 'No Miracles, No Fallacies', Department of Philosophy, University of Auckland (2010).
- 'Bayesian updating, quantum mixing and measurement', Boston Colloquium for the Philosophy of Science (2006).
- 'The second law and time-reversal symmetry', conference on New Directions in Foundations of Physics, Maryland (2004).
- 'Non-locality of quantum operations', Philosophy of Physics research seminar, University of Oxford (2002).
- 'Measuring quantum entanglement', international conference on Modality, Probability and Bell's Theorems, Cracow, Poland (2001).
- 'Quantum entanglement', Philosophy of Physics graduate discussion group, University of Oxford (2001).

- 'Optimal entanglement generation from quantum operations', Optics group, Imperial College London (2002), and Department of Mathematics, University of York (2002).
- 'Quantum entanglement', Theoretical Physics, University of Oxford (2001).
- 'Quantum computation', Artificial Intelligence Society, University of Oxford (1999).
- 'Two-state teleportation', Imperial College London (1999).

CONFERENCE PRESENTATIONS

Talks

- 'Global vs. local approaches to the scientific realism debate', 4th annual conference of the OZSW (Dutch Research School of Philosophy), Groningen, The Netherlands (forthcoming December 2016).
- 'Reliability and evidence', OZSW (Dutch Research School of Philosophy) Masterclass on Social Epistemology, Groningen, The Netherlands (forthcoming December 2016).
- 'Bringing virtues together', 8th Quadrennial International Fellows Conference, Lund, Sweden (2016).
- 'The No Miracles argument and the base rate fallacy', British Society for the Philosophy of Science Annual Conference, Cardiff, UK (2016).
- Comments on Bengt Autzen's 'A Popperian Doctrine on Probability Revisited', 13th annual Formal Epistemology Workshop, Groningen, The Netherlands (2016).
- 'Explanation, probability and scientific realism', Philosophy of Science in a Forest, Kaap Doorn, The Netherlands (2016).
- 'Should the debate over scientific realism go local?', 5th European Philosophy of Science Association Meeting, Duesseldorf, Germany (2015).
- 'Should the debate over scientific realism go local?', 24th Philosophy of Science Association Meeting, Chicago, USA (2014).
- 'No Miracles, No Fallacies', 22nd Philosophy of Science Association Meeting, Montreal, Canada (2010).
- Comments on Kevin Kelly's 'Simplicity and truth-conduciveness', 4th annual Formal Epistemology Workshop, Pittsburgh, USA (2007).
- 'Frameworks in science: a Bayesian approach', LSE-Pitt Conference: Confirmation, Induction and Science, London, UK (2007).
- 'Which side are the robots on?', International Conference on Computers and Philosophy, Laval, France (2006).
- 'Metaphysical assumptions in reliabilist theories of knowledge', annual conference on Philosophy of Science, Inter University Centre, Dubrovnik, Croatia (2002).
- 'Are all mixed states obtained from pure ones?', 1st Euresco conference on Quantum Information – Quantum Entanglement, San Feliu de Guixois, Spain (2002).
- 'Entanglement and classical information', 8th UK Foundations of Physics conference, London, UK (1999).
- 'Teleportation of dynamics', 4th international workshop on Mysteries, Puzzles and Paradoxes in Quantum Mechanics, Lake Garda, Italy (1998).
- 'The evolution of genetic coding', Santa Fe Institute Complex Systems Summer School, Santa Fe, New Mexico, US (1997).

Posters

- 'Entanglement concentration in Bose-Einstein condensates', international conference on Quantum Information: Conceptual Foundations, Developments and Perspectives, Oviedo, Spain (2002).
- 'Information, relative entropy of entanglement and irreversibility', 5th international conference on Quantum Communication, Measurement and Computing, Capri, Italy (2000).
- 'Two-state teleportation', Newton Institute workshop on Complexity, Computation and the Physics of Information, Cambridge, UK (1999).

RESEARCH EXPERIENCE

University of Pittsburgh

- Visiting Fellow, Center for Philosophy of Science, 1/2014-5/2014.
- Visiting Scholar, Center for Philosophy of Science, 9/2011-6/2012

Carnegie Mellon University

- Fellow, Center for Formal Epistemology, 9/2014-6/2015 and 9/2012-6/2013.

Massachusetts Institute of Technology

- Research Assistant, Computational Cognitive Science group, Brain and Cognitive Sciences, MIT. Summer 2006.
- Research Assistant, Cognitive Machines group, headed by Deb Roy, Media Laboratory, MIT. Summer 2005.

University of Utrecht, The Netherlands

- Project on 'The maximum entropy principle and quantum entanglement', funded by FOM, the Foundation for Fundamental Research on Matter, Institute for History and Foundations of Mathematics and Natural Science, Utrecht, Netherlands. 3/2003–7/2003.

TEACHING EXPERIENCE

University of Groningen

- Core Issues, The problem of Induction, Faculty of Philosophy. Semester 2b, 2016 and Semester 1a, 2016.
- Philosophy of the Natural Sciences, Faculty of Philosophy. Semester 1b, 2015-6.
- Reliability, uncertainty and trust. Honours College and University College. Semester 1b, 2015-6.

University of Pittsburgh

- Problem Solving: how science works. Dept. of History and Philosophy of Science, Summer 2014, Fall 2012
- Principles of Scientific Reasoning. Dept of History and Philosophy of Science, Fall 2013

Carnegie Mellon University

- Philosophy of Biology. Dept of Philosophy, Fall 2013, Spring 2012.

Massachusetts Institute of Technology

- Problems of Philosophy. Dept of Linguistics and Philosophy. Assistant to Stephen Yablo. Fall 2006.
- Thinking about Life (Philosophy of Biology). Dept of Linguistics and Philosophy. Assistant to Denis Walsh. Spring 2006.
- Minds and Machines. Dept of Linguistics and Philosophy. Assistant to Alex Byrne. Fall 2005.
- What is the best way to live? (Ethics). Dept of Linguistics and Philosophy. Assistant to Caspar Hare. Spring 2005.

Harvard University

- Philosophy of Physics. Dept of Philosophy. Assistant to Peter Koellner. Spring 2004.

University of Bristol

- Third year quantum mechanics. Dept of Mathematics. 2002.
- First year applied mathematics tutor. Dept of Mathematics. 2001-2

University of Oxford

- Second year kinetic theory and thermodynamics tutor. Merton College, 2000 and Exeter College, 1999.
- Second year optics tutor. Exeter College. 1999.

PHD SUPERVISION

- Supervisor of Joost Schreuder, PhD candidate at University of Groningen. November 2016 -
- Co-supervisor of Max Bialek, PhD candidate at University of Maryland and University of Groningen. September 2015 -

ACADEMIC SERVICE

Committees

- Member of Board of Education, University College Groningen (2015-6).

Conferences

- Organising committee for HOPOS (History of Philosophy of Science) conference, Groningen, The Netherlands, (2018).
- Programme committee for 14th annual Formal Epistemology Workshop, University of Washington, Seattle, USA (2017).
- Organising committee for OZSW (Dutch Research School of Philosophy) annual conference, Groningen, The Netherlands (2016).
- Organising committee for 13th annual Formal Epistemology workshop, Groningen, The Netherlands, (2016).
- Organiser of European Philosophy of Science Association 2015 Symposium: Local vs. Global Approaches to Realism (co-organiser Juha Saatsi). 25-26 September 2015, Duesseldorf, Germany.

- Invited participant and chair of session at Workshop on Foundations of Statistical Mechanics, Oxford University, 2015.

Refereeing

- Currently reviewer for journals: British Journal for the Philosophy of Science, Journal for General Philosophy of Science, European Journal for the Philosophy of Science, Minds and Machines, Phil Papers, Ergo, Studies in the History and Philosophy of Modern Physics, Studies in History and Philosophy of Science, Synthese, Review of Symbolic Logic and International Studies in the Philosophy of Science.
- Reviewer for Physical Review A and Physical Review Letters 2000-2003.

Outreach

- Talk: 'Tools for thought: John Dewey and American pragmatism' at Night of Philosophy, Groningen, The Netherlands (2016).
- Organised and taught two week-long residential physics courses for final year high school students. The Manor Charitable Trust, Oxfordshire. (2000-2001)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Philosophical Association.
- Philosophy of Science Association.
- European Philosophy of Science Association.
- Society for Risk Analysis.