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Jon Williamson

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http://blogs.kent.ac.uk/jonw/

Overview

Jon works on the philosophy of science and medicine. Most recently, he has been investigating the use of evidence of mechanisms in medicine (see *Evaluating evidence of mechanisms in medicine*, Springer 2018, and the EBM+ network). He has developed an epistemic theory of causality (*Bayesian nets and causality*, OUP 2005), defended an analogous epistemic theory of probability (*In defence of objective Bayesianism*, OUP 2010), worked on a unifying framework for probabilistic logic (*Probabilistic logics and probabilistic networks*, Springer 2011), and developed a Bayesian version of inductive logic (*Lectures on inductive logic*, OUP 2017).

Career

Since Sept. 05. Philosophy, University of Kent: Professor of Reasoning, Inference and Scientific Method since 2008. Currently Director of Research, Director of Research Postgraduate Studies and co-director of the Centre for Reasoning.

Oct. 04 - Sept. 05. Philosophy, London School of Economics: Tutorial Fellow.

Oct. 98 - Sept. 04. Philosophy, King's College London: Research Fellow.

Education

Sept. 95 - Sept. 98. King's College London: PhD Philosophy.

Sept. 94 - Sept. 95. King's College London: MSc Philosophy of Science & Mathematics.

Sept. 91 - June 94. Manchester University: BSc Hon's Mathematics.

Publications

Monographs.

Parkkinen, V.-P., Wallmann, C., Wilde, M., Clarke, B., Illari, P., Kelly, M. P., Norell, C., Russo, F., Shaw, B., and Williamson, J. (2018). *Evaluating evidence of mechanisms in medicine: principles and procedures.* Springer Briefs. Springer.

Williamson, J. (2017a). *Lectures on inductive logic.* Oxford University Press, Oxford.

Haenni, R., Romeijn, J.-W., Wheeler, G., and Williamson, J. (2011). *Probabilistic logics and probabilistic networks.* Synthese Library. Springer, Dordrecht.

Williamson, J. (2010b). *In defence of objective Bayesianism.* Oxford University Press, Oxford.

Williamson, J. (2005a). *Bayesian nets and causality: philosophical and computational foundations.* Oxford University Press, Oxford.

Edited Volumes.

Combining Probability and Logic, co-edited with Jürgen Landes, special issue of the *Journal of Applied Logic*, 2016;

Maximum Entropy applied to Inductive Logic and Reasoning, co-edited with Jürgen Landes, special issue of the journal *Entropy*, 2014-15;

Illari, P. M., Russo, F., and Williamson, J., editors (2011). *Causality in the sciences.* Oxford University Press, Oxford.

Williamson, J. and Russo, F., editors (2010). *Key terms in logic.* Continuum, London.

Combining Probability and Logic, co-edited with Fabio Cozman, Rolf Haenni, Jan-Willem Romeijn, Federica Russo and Gregory Wheeler, special issue of the *Journal of Applied Logic*, 2009;

Russo, F., and Williamson, J., editors (2007). *Causality and Probability in the Sciences.* College Publications, London.

Combining Probability and Logic, special issue of the Journal of Logic, Language and Information, 2006;

Combining Probability and Logic, special issue of the Journal of Applied Logic, 2003;

Corfield, D. and Williamson, J., editors (2001). *Foundations of Bayesianism.* Kluwer, Dordrecht. Applied Logic Series.

Journal Papers & Book Chapters. (* refereed papers)

Aronson, J. K., La Caze, A., Kelly, M. P., Parkkinen, V.-P., and Williamson, J. (2018). The use of mechanistic evidence in drug approval. *Journal of Evaluation in Clinical Practice*, doi: 10.1111/jep.12960.*

Romeijn, J.-W. and Williamson, J. (2018). Intervention and identifiability in latent variable modelling. *Minds and Machines*, 28(2):243–264.*

Williamson, J. (2018a). Establishing causal claims in medicine. *International Studies in the Philosophy of Science*, in press.*

Williamson, J. (2018b). Establishing the teratogenicity of Zika and evaluating causal criteria. *Synthese*, doi: 10.1007/s11229-018-1866-9.*

Williamson, J. (2018c). Justifying the principle of indifference. *European Journal for the Philosophy of Science*, doi: 10.1007/s13194-018-0201-0.*

Parkkinen, V.-P. and Williamson, J. (2017). Extrapolating from model organisms in pharmacology. In La Caze, A. and Osimani, B., editors, *Uncertainty in pharmacology: epistemology, methods, and decisions.* Springer, Dordrecht.*

Williamson, J. (2017b). Models in systems medicine. *Disputatio*, in press.*

Hawthorne, J., Landes, J., Wallmann, C., and Williamson, J. (2017). The Principal Principle implies the Principle of Indifference. *British Journal for the Philosophy of Science*, 68:123–131.*

Wallmann, C. and Williamson, J. (2017). Four approaches to the reference class problem. In *Making it Formally Explicit: Probability, Causality and Indeterminism*, European Studies in Philosophy of Science, pages 61–81. Springer.*

Wilde, M. and Williamson, J. (2016a). Bayesianism and information. In Floridi, L., editor, *The Routledge Handbook of Philosophy of Information*, chapter 15, pages 180–187. Routledge, Abingdon.

Wilde, M. and Williamson, J. (2016b). Evidence and epistemic causality. In Wiedermann, W. and von Eye, A., editors, *Statistics and Causality: Methods for Applied Empirical Research*, pages 31–41. Wiley, Hoboken, New Jersey.

Wilde, M. and Williamson, J. (2016c). Models in medicine. In Solomon, M., Simon, J., and Kincaid, H., editors, *Routledge Companion to Philosophy of Medicine*, pages 271–284. Routledge, New York and London.*

Landes, J. and Williamson, J. (2015). Justifying objective Bayesianism on predicate languages. *Entropy*, 17(4):2459–2543.*

Williamson, J. (2015). Deliberation, judgement and the nature of evidence. *Economics and Philosophy*, 31(1):27–65.*

Williamson, J. (2014). How uncertain do we need to be? *Erkenntnis*, 79(6):1249–1271.*

Clarke, B., Gillies, D., Illari, P., Russo, F., and Williamson, J. (2014a). Mechanisms and the evidence hierarchy. *Topoi*, 33(2):339–360.*

Clarke, B., Leuridan, B., and Williamson, J. (2014b). Modelling mechanisms with causal cycles. *Synthese*, 191(8):1651–1681.*

Williamson, J. (2013a). From Bayesian epistemology to inductive logic. *Journal of Applied Logic*, 11(4):468–486.*

Williamson, J. (2013b). Why frequentists and Bayesians need each other. *Erkenntnis*, 78(2):293–318.*

Clarke, B., Gillies, D., Illari, P., Russo, F., and Williamson, J. (2013). The evidence that evidence-based medicine omits. *Preventative Medicine*, 57(6):745–747.*

Illari, P. and Williamson, J. (2013). In defence of activities. *Journal for General Philosophy of Science*, 44(1):69–83.*

Landes, J. and Williamson, J. (2013). Objective Bayesianism and the maximum entropy principle. *Entropy*, 15(9):3528–3591.*

Williamson, J. (2012). Calibration and convexity: Response to Gregory Wheeler. *British Journal for the Philosophy of Science*, 63(4):851–857.*

Illari, P. M. and Williamson, J. (2012). What is a mechanism? Thinking about mechanisms *across* the sciences. *European Journal for Philosophy of Science*, 2:119–135.*

Russo, F. and Williamson, J. (2012). EnviroGenomarkers: the interplay between mechanisms and difference making in establishing causal claims. *Medicine Studies: International Journal for the History, Philosophy and Ethics of Medicine & Allied Sciences*, 3:249–262.*

Williamson, J. (2011a). Mechanistic theories of causality. *Philosophy Compass*, 6(6):421–447.*

Williamson, J. (2011b). An objective Bayesian account of confirmation. In Dieks, D., Gonzalez, W. J., Hartmann, S., Uebel, T., and Weber, M., editors, *Explanation, Prediction, and Confirmation. New Trends and Old Ones Reconsidered*, pages 53–81. Springer, Dordrecht.*

Williamson, J. (2011c). Objective Bayesianism, Bayesian conditionalisation and voluntarism. *Synthese*, 178:67–85.*

Casini, L., Illari, P. M., Russo, F., and Williamson, J. (2011). Models for prediction, explanation and control: recursive Bayesian networks. *Theoria*, 26(1):5–33.*

Darby, G. and Williamson, J. (2011). Imaging technology and the philosophy of causality. *Philosophy & Technology*, 24(2):115–136.*

Illari, P. M. and Williamson, J. (2011). Mechanisms are real and local. In Illari, P. M., Russo, F., and Williamson, J., editors, *Causality in the Sciences*, pages 818–844. Oxford University Press, Oxford.*

Osimani, B., Russo, F., and Williamson, J. (2011). Scientific evidence and the law: an objective Bayesian formalisation of the precautionary principle in pharmaceutical regulation. *Journal of Philosophy, Science and Law*, 11.*

Russo, F. and Williamson, J. (2011a). Epistemic causality and evidence-based medicine. *History and Philosophy of the Life Sciences*, 33(4):563–582.*

Russo, F. and Williamson, J. (2011b). Generic versus single-case causality: the case of autopsy. *European Journal for Philosophy of Science*, 1(1):47–69.*

Wheeler, G. and Williamson, J. (2011). Evidential probability and objective Bayesian epistemology. In Bandyopadhyay, P. S. and Forster, M., editors, *Philosophy of Statistics*, Handbook of the Philosophy of Science, pages 307–331. Elsevier, Amsterdam.*

Williamson, J. (2010a). Epistemic complexity from an objective Bayesian perspective. In Carsetti, A., editor, *Causality, meaningful complexity and embodied cognition*, pages 231–246. Springer, Dordrecht.

Illari, P. M. and Williamson, J. (2010). Function and organization: comparing the mechanisms of protein synthesis and natural selection. *Studies in History and Philosophy of Biological and Biomedical Sciences*, 41:279–291.*

Williamson, J. (2009a). Aggregating judgements by merging evidence. *Journal of Logic and Computation*, 19:461–473.*

Williamson, J. (2009b). Philosophies of probability. In Irvine, A., editor, *Handbook of the philosophy of mathematics*, pages 493–533. North-Holland, Amsterdam. Handbook of the Philosophy of Science volume 4.

Williamson, J. (2009c). The philosophy of science and its relation to machine learning. In Gaber, M. M., editor, *Scientific Data Mining and Knowledge Discovery: Principles and Foundations*, pages 77–89. Springer.

Williamson, J. (2009d). Probabilistic theories. In Beebee, H., Hitchcock, C., and Menzies, P., editors, *The Oxford Handbook of Causation*, pages 185–212. Oxford University Press, Oxford.

Williamson, J. (2008a). Objective Bayesian probabilistic logic. *Journal of Algorithms in Cognition, Informatics and Logic*, 63:167–183.*

Williamson, J. (2008b). Objective Bayesianism with predicate languages. *Synthese*, 163(3):341–356.*

Nagl, S., Williams, M., and Williamson, J. (2008). Objective Bayesian nets for systems modelling and prognosis in breast cancer. In Holmes, D. and Jain, L., editors, *Innovations in Bayesian networks: theory and applications*, pages 131–167. Springer, Berlin.*

Williamson, J. (2007a). Causality. In Gabbay, D. and Guenthner, F., editors, *Handbook of Philosophical Logic*, volume 14, pages 95–126. Springer, Dordrecht.

Williamson, J. (2007b). Inductive influence. *British Journal for the Philosophy of Science*, 58(4):689–708.*

Williamson, J. (2007c). Motivating objective Bayesianism: from empirical constraints to objective probabilities. In Harper, W. L. and Wheeler, G. R., editors, *Probability and Inference: Essays in Honour of Henry E. Kyburg Jr.*, pages 151–179. College Publications, London.

Russo, F. and Williamson, J. (2007a). Interpreting causality in the health sciences. *International Studies in the Philosophy of Science*, 21(2):157–170.*

Russo, F. and Williamson, J. (2007b). Interpreting probability in causal models for cancer. In Russo, F. and Williamson, J., editors, *Causality and probability in the sciences*, Texts in Philosophy, pages 217–241. College Publications, London.*

Williamson, J. (2006a). Causal pluralism versus epistemic causality. *Philosophica*, 77:69–96.*

Williamson, J. (2006b). Dispositional versus epistemic causality. *Minds and Machines*, 16:259–276.*

Williams, M. and Williamson, J. (2006). Combining argumentation and Bayesian nets for breast cancer prognosis. *Journal of Logic, Language and Information*, 15:155–178.*

Williamson, J. (2005b). Objective Bayesian nets. In Artemov, S., Barringer, H., d'Avila Garcez, A. S., Lamb, L. C., and Woods, J., editors, *We Will Show Them! Essays in Honour of Dov Gabbay*, volume 2, pages 713–730. College Publications, London.

Williamson, J. and Gabbay, D. (2005). Recursive causality in Bayesian networks and self-fibring networks. In Gillies, D., editor, *Laws and models in the sciences*, pages 173–221. King's College Publications, London. With comments pp. 223–245.

Williamson, J. (2004). A dynamic interaction between machine learning and the philosophy of science. *Minds and Machines*, 14(4):539–549.*

Williamson, J. (2003). Bayesianism and language change. *Journal of Logic, Language and Information*, 12(1):53–97.*

Williamson, J. (2002a). Maximising entropy efficiently. *Electronic Transactions in Artificial Intelligence Journal*, 6. www.etaij.org.*

Williamson, J. (2002b). Probability logic. In Gabbay, D., Johnson, R., Ohlbach, H. J., and Woods, J., editors, *Handbook of the logic of argument and inference: the turn toward the practical*, pages 397–424. Elsevier, Amsterdam.

Williamson, J. (2001). Foundations for Bayesian networks. In Corfield, D. and Williamson, J., editors, *Foundations of Bayesianism*, pages 75–115. Kluwer, Dordrecht.

Williamson, J. (1999). Countable additivity and subjective probability. *British Journal for the Philosophy of Science*, 50(3):401–416.*

Conference & Workshop Papers. (* refereed papers)

Recursive Bayesian networks for prediction, explanation and control in cancer science: a position paper, with Lorenzo Casisi, Phyllis McKay Illari and Federica Russo, in Proceedings of the International Conference on Bioinformatics, Valencia, 20-23 January 2010.*

Logical relations in a statistical problem, with Jan-Willem Romeijn, Rolf Haenni and Gregory Wheeler, in *B*. Lowe, *E*. Pacuit & J.W. Romeijn (eds): Reasoning about probabilities and probabilistic reasoning, Proceedings of Foundations of the Formal Sciences VI, London: College Publications, 2009.*

Possible Semantics for a Common Framework of Probabilistic Logics, with Rolf Haenni, Jan-Willem Romeijn and Gregory Wheeler , in *V*. *N*. Huynh (ed.): Interval / Probabilistic Uncertainty and Non-Classical Logics, Advances in Soft Computing Series, Springer, pp. 268-279, 2008.*

Objective Bayesian nets for integrating cancer knowledge: a systems biology approach, with Sylvia Nagl, Matt Williams, Nadjet El-Mehidi and Vivek Patkar, in Proceedings of the Workshop on Probabilistic Modelling and Machine Learning in Structural and Systems Biology, Tuusula, Finland 2006, Helsinki University Printing House, pp. 44-49.*

Two-stage Bayesian networks for metabolic network prediction, with Jung-Wook Bang & Raphael Chaleil, in Proceedings of the Workshop on Qualitative and Model-Based Reasoning in Biomedicine, 9th Conference on Artificial Intelligence in Medicine Europe, Cyprus, 18-22 October 2003.*

Learning causal relationships, Causality: Metaphysics and Methods, London School of Economics, 21 June 2002, Technical Report 02/02, LSE Centre for Natural and Social Sciences, www.lse.ac.uk/Depts/cpnss/proj_causality.htm.

Machine Learning and the Philosophy of Science: a Dynamic Interaction, in *K*. Korb & *H*. Bensusan (eds): 'Proceedings of the ECML-PKDD-01 workshop on Machine Learning as Experimental Philosophy of Science', Freiburg, 2001.*

Bayesian networks for logical reasoning, in Carla Gomes & Toby Walsh (eds): 'Proceedings of the AAAI Fall Symposium on using Uncertainty within Computation', AAAI Press Technical Report FS-01-04, 2001, pp. 136-143.*

Approximating discrete probability distributions with Bayesian networks, Proceedings of the International Conference on Artificial Intelligence in Science and Technology, Hobart, Tasmania, 16-20 December 2000, pp. 106-114.*

A probabilistic approach to diagnosis, Proceedings of the Eleventh International Workshop on Principles of Diagnosis (DX-00), Morelia Mexico, June 8-11 2000.*

Reviews & Notes.

Review of 'Reliable Reasoning' by Gilbert Harman and Sanjeev Kulkarni. *Mind*, 121:1073-1076, 2013.

Bruno de Finetti: Philosophical lectures on probability, *Philosophia Mathematica* 18(1):130-135, 2010.

Response to Glymour, *British Journal for the Philosophy of Science* 60(4):857-860, 2009.

A note on probabilistic logics and probabilistic networks, *The Reasoner* 2(5):4-5, 2008.

From Bayesianism to the epistemic view of mathematics: remarks motivated by Richard Jeffrey's 'Subjective probability: the real thing', *Philosophia Mathematica* 14(3):365-369, 2006.

Introduction to progic, editorial, *Journal of Logic, Language and Information*, 2005.

Combining probability and logic, editorial, *Journal of Applied Logic* 1(3-4):135-138, 2003.

Abduction and its distinctions, review of Lorenzo Magnani: 'Abduction, reason, and science: processes of discovery and explanation' (Kluwer Academic / Plenum Publishers 2001), *British Journal for the Philosophy of Science* 54(2), 2003.

Bayesianism into the 21st Century, with David Corfield, in David Corfield & Jon Williamson (eds.): 'Foundations of Bayesianism', Kluwer, pp. 1-16, 2001.

Grants awarded

(* principal investigator)

Evaluating evidence in medicine, Arts and Humanities Research Council, 2015-2018.*

Grading evidence of mechanisms in physics and biology, The Leverhulme Trust, 2015-2018.*

From objective Bayesian epistemology to inductive logic, Arts and Humanities Research Council, 2012-2015.*

Mechanisms and the evidence hierarchy, Arts and Humanities Research Council, 2012.*

Causality across the levels: biomedical mechanisms and public health policies, British Academy, 2009-2011.*

Multiplicity and Unification in Statistics and Probability, University of Kent Strategic Research Grant, 2009.*

Causality Study Fortnight and the levels of Causality, British Academy, 2008.*

Network on Philosophy of Science, University of Kent SECL Strategic Research Grant, 2008-2012.*

In defence of objective Bayesianism, Leverhulme Research Fellowship, 2007-2009.*

Mechanisms and causality, The Leverhulme Trust, 2007-2010.*

The Reasoner: a gazette on reasoning, University of Kent SECL Strategic Research Grant, 2007.*

Probabilistic logic and probabilistic networks, a pan-European academic network, The Leverhulme Trust, 2006-8.*

Causality and the interpretation of probability in the social and health sciences, British Academy, 2006.*

Interdisciplinary network on inductive logic, University of Kent SECL Strategic Research Grant, 2006.*

Causality and probability in the sciences, University of Kent Promising Researcher Grant, 2006.*

Objective Bayesian nets for integrating cancer knowledge: a systems biology approach, University of Kent Colyer-Fergusson award, 2006-7.*

Probability and proof, collaborating with Dov Gabbay (King's College London) and Michael Rabin (Harvard), EPSRC, 2004.

Various conference grants: British Society for the Philosophy of Science, British Logic Colloquium, London Mathematical Society, The Mind Association, The Aristotelian Society, Kent Institute for Advanced Studies in the Humanities.

Professional service

Chair of the Advisory Board, Centre for Philosophy of Natural and Social Science, London School of Economics, 2013-.

External examiner, MSc programmes, Department of Philosophy, Logic and Scientific Method, London School of Economics, 2010-14.

Committee Member, British Society for the Philosophy of Science, 2010-13.

Founder & co-director, University of Kent Centre for Reasoning.

Founding editor, *The Reasoner.*

Editorial Board member, *Journal of Applied Logics.*

Co-founder & steering committee member, *Combining Probability & Logic* (progic) conference series.

Co-founder & steering committee member, *Causality in the Science* (CitS) conference series.

Awards

University Prize for Research, University of Kent 2015.

British Academy Research Development Award 2009.

Times Higher Young Researcher of the Year 2007.