

BLACKBURN, Patrick Rowan Modal and hybrid logic, applications of logic in natural language, cognitive and computer science, and philosophy.

Born: 12 July 1959, Hong Kong, China. *Educated:* University of Waikato BA (major: Philosophy, minor: Mathematics), 1981, University of Sussex MSc (Logic and Scientific Method), 1986, University of Edinburgh PhD, 1990. *Dissertation:* *Nominal Tense Logic and Other Sorted Intensional Frameworks*; supervisors, Johan van Benthem, Inge Bethke, and Barry Richards.

Regular Academic or Research Appointments: PROFESSOR OF FORMAL PHILOSOPHY, ROSKILDE UNIVERSITY, 2011–; Directeur de Recherche, INRIA, 2000–2011, Lecturer, Computational Linguistics Department, University of the Saarland, 1994–2000; Research Associate, Philosophy Department, Utrecht University, 1992–1994; Postdoctoral Fellow, Mathematics and Computer Science Department, University of Amsterdam, 1991–1992; Postdoctoral Fellow, Centre for Cognitive Science, Edinburgh University, 1990–1991.

Visiting Academic or Research Appointments: Invited Researcher, Institute for Research in Cognitive Science, University of Pennsylvania, 1998.

Research Profile: I am interested in logic and what it can teach us about natural language and other aspects of human cognition. My theoretical work has centered on hybrid logic. Hybrid logics are modal logics in which it is possible to name the points of evaluation. First introduced by Arthur Prior in the 1960s, hybrid logics are closely related to the description logics used in contemporary knowledge representation. I have worked on a number of topics in hybrid logic, including their model theory, proof theory, computational complexity, and their role in Prior’s philosophy.

My applied work centers on logical analysis of natural language. I have worked on feature logic (logics for what computational linguists call attribute-value structures) and model-theoretic syntax (an approach to natural language syntax based on the idea that grammars are axioms that define the grammatical trees). But most of my current work centers on applications of logic in natural language semantics and pragmatics. I am particularly interested in the role inference plays in natural language and have explored the use of automated reasoning tools (such as theorem provers, model builders and model checkers) in handling inferential phenomena characteristic of natural language (such as presupposition and implicature). I am also interested in the semantics of tense and aspect, a topic which links up with my work on hybrid logic.

Significant Publications:

1. *Handbook of Modal Logic*, edited with J. van Benthem and F. Wolter, Elsevier, 2007.
2. Pure Extensions, Proof Rules, and Hybrid Axiomatics, with Balder ten Cate, *Studia Logica*, 84 (2006), 277–322.
3. Arthur Prior and Hybrid Logic, *Synthese*, 50 (2006), 329–372.
4. *Representation and Inference for Natural Language: A First Course in Computational Semantics*, with J. Bos, CSLI Press, 2005.
5. Constructive Interpolation in Hybrid Logic, with M. Marx, *Journal of Symbolic Logic*, 68 (2003), 463–480.
6. Repairing the Interpolation Theorem in Quantified Modal Logic, with C. Areces and M. Marx, *Annals of Pure and Applied Logic*, 124 (2003), 287–299.
7. Hybrid Logic: Characterization, Interpolation and Complexity, with C. Areces and M. Marx, *Journal of Symbolic Logic*, 66 (2001), 977–1010.
8. *Modal Logic*, with M. de Rijke and Y. Venema, Cambridge University Press, 2001.
9. Representation, Reasoning, and Relational Structures: a Hybrid Logic Manifesto, *Logic Journal of the IGPL*, 8(3), 339–625, 2000.
10. Internalizing Labelled Deduction, *Journal of Logic and Computation*, 10 (2000), 137–168.
11. Hybrid Languages and Temporal Logic, with M. Tzakova, *Logic Journal of the IGPL*, 7 (1999), 27–54.
12. Hybrid Languages, with J. Seligman, *Journal of Logic, Language and Information*, 4 (1995), 251–272.
13. Tense, Temporal Reference and Tense Logic, *Journal of Semantics*, 11 (1994), 83–101.

14. Talking about Trees, with C. Gardent and W. Meyer-Viol, in *Proceedings of the Sixth Conference of the European Chapter of the Association for Computational Linguistics* (1993), 21–29.
15. A Modal Perspective on the Computational Complexity of Attribute Value Grammar, with E. Spaan, *Journal of Logic, Language and Information*, 2 (1993), 129–169.
16. Nominal Tense Logic, *Notre Dame Journal of Formal Logic*, 14 (1993), 56–83.

Service to the Profession: Subject Editor (Logic and Language), *Stanford Encyclopedia of Philosophy*, 2004–; Editor-in-Chief, *Journal of Logic, Language and Information*, 2002–2010; Editor, *Review of Symbolic Logic*, 2007–2011; Editor, *Journal of Philosophical Logic*, 2004–2007; Editor, *Journal of Logic, Language and Information*, 1997–2002; Editorial Board, *Notre Dame Journal of Formal Logic*, 2006–; *Logique et Analyse*, 2005–; *Journal of Computational Linguistics*, 1995–1997; Co-organiser, *ESSLLI 2004, 16th European Summer School in Logic, Language and Information*, Nancy, France; President (and founder), *ACL Special Interest Group in Computational Semantics (SIGSEM)*, 1999–2007; Standing Committee, *European Summer School in Logic, Language and Information*, 1996–1999.

Teaching: I have taught a wide variety of courses, for both beginners and advanced students, on many aspects of logic and its applications. I love teaching. I particularly enjoy working out what it is students find difficult, and coming up with a way of making it clear. Good teaching should be like good writing: the goal is not to be understandable, rather it is to be impossible to be misunderstood. It’s rarely possible to live up to this, but even failed attempts are worthwhile. Former students of mine include Johan Bos, Balder ten Cate, and Luciana Benotti.

Vision Statement: In the mid 19th century, logic was closely associated with natural language, psychology, and philosophy, but was too weak to treat these topics seriously. An important result of the tremendous technical developments of the 20th century is that logic is now in excellent shape to tackle anew some of its traditional concerns.

Honours and Awards: SERC (UK) Postdoctoral Fellowship in Information Technology, 1990–1992; New Zealand Junior Scholarship, 1976–1979.