

CURRICULUM VITAE

ALASDAIR IAN FENTON URQUHART

Professor Emeritus, Philosophy and Computer Science

University of Toronto

Date of latest revision: October 2008

A. Biographical Information

1. *Personal*

Date of Birth: 20 December, 1945

Citizenship: Canadian

Home address: 54 Boustead Avenue, Toronto, Ontario M6R 1Y9

Home phone: Unlisted

University address: Department of Computer Science, University of Toronto,
Room 2303A Sandford Fleming, University of Toronto M5S 3G4

Office phone: 416-946-8477

2. *Degrees*

M.A. Hons., University of Edinburgh, 1967

M.A. University of Pittsburgh, 1969

Ph.D. University of Pittsburgh, 1973

Title of Ph.D.Thesis: "The Semantics of Entailment"

Supervisors: Profs. Nuel D. Belnap Jr. and Alan Ross Anderson

3. *Employment*

Present Appointment

Professor Emeritus, University of Toronto 2007 -

Professor, University of Toronto, 1986 - 2007.

Associate Professor, University of Toronto, Erindale College, 1975-86

Date of appointment to Graduate School, 1973

Date of tenure award, Spring, 1975

Assistant Professor, University of Toronto, Erindale College, 1973-75

Lecturer, University of Toronto, Erindale College, 1970-73

Teaching Fellow, University of Pittsburgh, 1967-70

4. *Professional Affiliations and Activities*

Consulting editor Journal of Symbolic Logic 1983-89

Former editor of Canadian Philosophical Monographs

Associate of the Institute for the History and Philosophy of Science and Technology

Referee for Canada Council, NSERC, NSF etc.

Referee for JSL, JPL, Studia Logica etc. etc.

Member, Executive Committee, Association for Symbolic Logic 1987-90

Member, Advisory Editorial board, Studia Logica 1991-

Member, ASL committee on meetings in N. America 1992-97

Member, ASL nominating committee, 1993-96, 2000

Programme committee, joint meeting of ASL and SEP, York University May 1993.

Board of editors, *Russell* 1999-

Editor, *Lecture Notes in Logic* (Springer Verlag), 1994-97
 Editor, *Trends in Logic*, 1994-2003.
 Consulting editor, *Studia Logica*.
 Member of editorial board, *International Studies in the Philosophy of Science*.
 Editor, *Reports on Mathematical Logic*, 1999 -
 Editor for non-classical logics, *Stanford On-Line Encyclopedia*, 1998-2004.
 Chair, Local arrangements committee, ASL Annual Meeting, Toronto, May 1998.
 Editor, FOM moderating mailing list, 2000 - .
 Society for Exact Philosophy, Vice-President 2000-2003, President 2003-2005
 Reviews managing editor, *Bulletin of Symbolic Logic*, 2002 - 2006, 2006 - 2008.
 Program committee for the Association of Symbolic Logic meeting, December 2005 (joint with APA).
 Co-organizer, Banff Research Centre Workshop *Logical Methods in Philosophy*, February 2007.

B. Academic History

5. a. *Research Endeavours*

Non-classical logics, lattice theory, philosophy of logic, foundations of mathematics, history of logic, theory of computation, computational complexity theory.

b. *Research Awards*

Canada Council Leave Fellowship 1976-77 (one-year) - \$9,200.
 SSHRC Leave Fellowship 1983-84 \$11,500.
 SSHRC Research Grant 1984-85. Project: "Investigations in logic" \$6,920.
 SSHRC Research Grant 1986-87. Project: "Studies in Complexity Theory", \$10,185.
 SSHRC Research Grant 1986-87. Project: "Editing Volume 4 of Bertrand Russell's Papers", \$45,615.
 SSHRC Research Grant 1989-91. Project: "Editing Volume 4 of The Collected Papers of Bertrand Russell", \$124,700.
 SSHRC Research Grant 1991-2. Project: "Editing Volume 4 of the Collected Papers of Bertrand Russell." \$46,490.
 SSHRC Research Grant 1992-3. Project: "Editing Volume 4 of the Collected Papers of Bertrand Russell." \$10,400.
 NSERC Operating Grant 1991-4. \$24,000 p.a.
 NSERC Operating Grant 1994-8. \$27,000 p.a.
 NSERC Operating Grant 1999-2003 \$27,000 p.a.
 NSERC Operating Grant 2003-2007. \$32,000 p.a.
Investigations in Complexity Theory, 4 year grant, 2007-2011. \$31,000 per annum. NSERC. Principal investigator.

C. Scholarly and Professional Work

6. *Refereed Publications*

a. *Articles in refereed journals*

"Semantics for relevant logics", *Journal of Symbolic Logic*, Vol. 37, No. 1, March 1972.
 "Completeness of weak implication", *Theoria* Vol. 37 (1971).
 "A semantical theory of analytic implication", *Journal of Philosophical Logic*, Vol. 2, April, 1973.
 "An interpretation of many-valued logic", *Zeitschrift für mathematische Logik und Grundlagen der Mathematik*, Vol. 19, pp. 111-114.
 "Free distributive pseudocomplemented lattices", *Algebra Universalis*, Vol. 3, pp. 13-15.
 "Free Heyting algebras", *Algebra Universalis*, Vol. 3, pp. 94-97.

“Implicational formulas in intuitionistic logic”, *Journal of Symbolic Logic*, Vol. 39, No. 4, December, 1974.

“Popper’s logical conceptions”, *Communication and Cognition*, Vol. 8 (1975), 237-242.

“Proofs, snakes and ladders”, *Dialogue*, Vol. 13, pp. 723-731 (1974).

Critical notice of Richard Montague’s *Formal Philosophy*, *Canadian Journal of Philosophy*, Vol. 4, pp. 573-578 (1975).

Critical notice of *Entailment*, Vol. 1, by Anderson and Belnap. *Canadian Journal of Philosophy*, Vol. 7, 405-411.

“A Finite Matrix Whose Consequence Relation is not Finitely Axiomatizable”, *Reports on Mathematical Logic*, Vol. 9 (1977), 71-73.

Review of *Meaning and Modality* by Casimir Lewy, *Journal of Philosophy*, Vol. 75 (1978).

“A topological representation theory for lattices”, *Algebra Universalis*, Vol. 8 (1978), 45-58.

“Distributive lattices with a dual homomorphic operation”, *Studia Logica*, Vol. 38 (1979), 201-209.

“Equational classes of distributive double p-algebras”, *Algebra Universalis*, Vol. 14 (1982), 235-243.

“Distributive lattices with a dual homomorphic operation II”, *Studia Logica*, Vol. XL, 1981-4, 391-404.

“The undecidability of entailment and relevant implication”, *Journal of Symbolic Logic*, Vol. 49 (1984), 1059-1073.

“Relevant implication and projective geometry”, *Logique et Analyse*, special issue on Canadian logic, Vol. 103-104, September 1983, pp. 345-357.

Critical notice of *Handbook of Mathematical Logic* (ed. Barwise) *Canadian Journal of Philosophy*, Vol. XIV, December 1984, 675-682.

Critical notice of *Beyond Analytic Philosophy* by Hao Wang, *Canadian Journal of Philosophy*, Vol. 17, 477-482 (June 1987).

“A Contractionless Semilattice Semantics”, (with S. Giambrone & Meyer), *Journal of Symbolic Logic*, Vol. 52 526-529 (June 1987).

“Proof Theories for Semilattice Logics” (with S. Giambrone), *Zeitschrift für Math. Logik und Grundlagen der Mathematik*, Vol. 33, 433-9 (1987).

“Hard examples for resolution”, *Journal of the Association for Computing Machinery*, Vol. 34, 209-219, (1987).

“Further Results on Proof Theories for Semilattice Logics” (co-authors Meyer, Giambrone, Martin), *Zeitschrift für Math. Logik u. Grundlagenforschung*, Vol. 34, 1988, 301-4.

“The Complexity of Gentzen Systems for Propositional Logic”, *Theoretical Computer Science*, Vol. 66, 1989, 87-97.

“What is relevant implication?” in: *Directions in Relevant Logic* ed. by Norman and Sylvan (Kluwer 1989), 167-74.

“Functional Interpretations of Feasibly Constructive Arithmetic” (extended abstract co-authored with S.A. Cook), 21st Annual ACM Symposium on theory of computing May 1989.

“The Logic of Physical Theory”, in: *Physicalism in Mathematics*, ed. A.D. Irvine, Kluwer 1990, 145-154.

“The complexity of decision problems in relevance logic”, in *Truth and Consequences* ed. by Dunn and Gupta, Kluwer 1990, 61-76.

“Complexity of proofs in classical propositional logic”, in *Logic from Computer Science* ed. Y.N. Moschovakis, Springer-Verlag 1992, 597-608.

Review of papers by Arnon Avron, *J. Symbolic Logic*, Vol. 57 (1992), 1481-2.

“Approximations and small-depth Frege proofs” (co-authors Stephen Bellantoni and Toni Pitassi), extended abstract in conference proceedings *Structures in Complexity Theory 1991*, Springer Lecture Notes in Computer Science 1991.

“The relative complexity of resolution and cut-free Gentzen systems”, *Annals of Mathematics and Artificial Intelligence*, 6 (1992), 157-68.

“Approximations and small-depth Frege proofs” (co-authors Stephen Bellantoni and Toni Pitassi), *SIAM J. of Computing*, Vol. 21 (1992), 1161-79.

“The Complexity of the Hajos calculus” (co-author Toniann Pitassi), *Proceedings of Symposium*

on the Theory of Computing, Pittsburgh 1992. See below for published complete version.

“Failure of interpolation in relevant logics”, *J. of Philosophical Logic*, Vol. 22 (1993), 449-479.

“Functional interpretations of feasibly constructive arithmetic” (co-author S.A. Cook), *Annals of Pure and Applied Logic*, Vol. 63 (1993), 103-200.

“Russellian Propositions” (co-author J. Pelham), *Proceedings of the conference on Logic, Methodology and Philosophy of Science*, Uppsala 1991, 307-326.

“Upper and lower bounds for tree-like cutting-plane proofs,” (co-authors Russell Impagliazzo and Toni Ann Pitassi), *Ninth I.E.E.E. Symposium on Logic in Computer Science* (1994), pp. 220-228.

“Decision problems for distributive lattice-ordered semigroups”, *Algebra Universalis*, Vol. 33 (1995), 399-418.

“The Complexity of the Hajos calculus” (co-author Toniann Pitassi). *SIAM J. of Discrete Mathematics*, Vol. 8 (1995), 464-483.

“Duality for algebras of relevant logics”, *Studia Logica*, Vol. 56 (1996), 263-276.

“G.F. Stout and the theory of descriptions,” *Russell* Vol. 14, 163-171.

“The complexity of propositional proofs,” *Bulletin of Symbolic Logic*, Vol. 1 (1995), 425-467.

“Simplified lower bounds for propositional proofs,” (co-author Xudong Fu), *Notre Dame J. of Formal Logic*, Vol. 37 (1996), 523-544.

“The number of lines in Frege proofs with substitution,” *Archive for Mathematical Logic*, (1997), Vol. 37, 15-19.

“Beth’s definability theorem in relevant logics,” in *Logic at Work*, ed. Ewa Orłowska, pp. 229-234, Springer Verlag 1999.

“The symmetry rule in propositional logic,” *Discrete Applied Mathematics*, Vol. 96-97 (1999), 177-193.

“The graph constructions of Hajós and Ore,” *Journal of Graph Theory*, Vol. 26 (1997), 211-215.

“The Complexity of Linear Logic with Weakening”, in *Logic Colloquium ‘98*, edited by Buss et al., Association for Symbolic Logic 2000, 500-515.

“The Complexity of Decision Procedures in Relevance Logic,” *Journal of Symbolic Logic*, Vol. 64 (1999), 1774-1802.

“The Complexity of Propositional Proofs”, *Canadian Journal of Artificial Intelligence*, No. 42 (Autumn 1998), 8-18.

Review of “Benacerraf and his Critics,” (co-author J.R. Brown), *Dialogue*, vol. 37, 633-637.

“Complexity of Propositional Proofs,” *Bulletin of the EATCS*, Number 64, 128-138.

Critical Notice of William Ewald (ed.) *From Kant to Hilbert*, *Dialogue*, Vol. 38, 587-592.

“Local Symmetries in Propositional Logic,” Co-author Noriko Arai. In *Automated Reasoning with Analytic Tableaux and Related Methods*, ed. by Roy Dyckhoff, Springer Lecture Notes in Artificial Intelligence, Vol. 1847, 40-51. Springer, 2000.

“Weakly additive operators on distributive lattices,” (co-author Peter Apostoli), in *Logical Consequence: Rival Approaches*, ed. by John Woods and Bryson Brown, Hermes Science Publishing, Oxford 2001.

“The Complexity of Analytic Tableaux,” co-authors Noriko Arai and Toniann Pitassi. *STOC 2001 Proceedings*.

“An Exponential Separation between Regular and General Resolution.” Co-authors M. Alekhnovic, J. Johannsen, T. Pitassi. In *Proceedings of STOC 2002*, Montreal.

“Resolution proofs of matching principles,” *Annals of Mathematics and Artificial Intelligence*, Volume 37 (2003), 241-250.

“Matrix identities and the pigeonhole principle” (joint work with Michael Soltys). *Archive for Mathematical Logic*, Volume 43 (2004), pp. 351-357.

“Synonymous Logics” (joint work with F.J. Pelletier). *Journal of Philosophical Logic*, Volume 32 (June 2003), pp. 259-285.

The Complexity of Propositional Proofs with the Substitution Rule, *Logic Journal of the IGPL*, Volume 13, pp. 287-291.

Duality Theory for Projective Algebras, in *Relational Methods in Computer Science*, pp. 33-47. Lecture Notes in Computer Science, Volume 3929, Springer Verlag, Berlin and Heidelberg 2006.

“Width versus size in resolution proofs,” *Theoretical Computer Science*, Volume 384 (2007), pp. 104–110. Preliminary version: *Theory and Applications of Models of Computation*, pp. 79–88. Lecture Notes in Computer Science 3959, Springer Verlag, Berlin and Heidelberg 2006.

“The Complexity of Analytic tableaux” (joint work with Noriko H. Arai and Toniann Pitassi), *Journal of Symbolic Logic*, Volume 71 (2006), 777–790. Preliminary version: Thirty-third annual ACM symposium on theory of computing, Hersonissos, Greece, pp. 356–363. Association for Computing Machinery 2001.

“The axiomatizability of supervaluational consequence” (joint work with Philip Kremer). 30 pages. Forthcoming, *Journal of Philosophical Logic*.

“Betweenness and comparability obtained from binary relations” (joint work with Ivo Düntsch). *Springer Lecture Notes in Computer Science 4136: Relations and Kleene Algebra in Computer Science*, Springer Verlag 2006, pp. 148–161.

“An Exponential Separation between Regular and General Resolution,” Co-authors M. Alekhovich, J. Johanssen, T. Pitassi. *Theory of Computing*, Volume 3(5), pp. 81–102, 2007. Preliminary version: Proceedings of STOC 2002, Montreal.

“Formalizing Dangerous SAT encodings,” (joint work with Alexander Hertel and Philipp Hertel) in *Theory and Applications of Satisfiability Testing – SAT 2007 Proceedings. Lecture Notes in Computer Science 4501*, pp. 159–172. Springer 2007.

“Four Variables Suffice,” *Australasian Journal of Logic*, Volume 5 (2007), pp. 66–73.

“Synonymous Logics: A Correction,” (joint work with F.J. Pelletier), *Journal of Philosophical Logic* Volume 37 (2008) : pp. 95–100.

“Regular and General Resolution: An Improved Separation,” in *Theory and Applications of Satisfiability Testing – SAT 2008*, pp. 277–290, Lecture Notes in Computer Science Volume 4996, edited by Hans Kleine Büning and Xishun Zhao, Springer Verlag 2008.

“Algorithms and Complexity Results for Input and Unit Resolution,” (co-author Alex Hertel) *Journal on Satisfiability, Boolean Modeling and Computation*, Volume 6 (2009), pp. 141–164.

b. Books and Chapters in books

Temporal Logic (joint author with Nicholas Rescher), Springer Verlag New York and Vienna 1971.

Section on Many Valued Logic in Gabbay and Guenther (eds.), *Handbook of Philosophical Logic*, Vol. III. Reidel 1984.

Sections 47 and 65 of Entailment, Vol. 2, by Anderson, Belnap and Dunn. Princeton University Press 1992.

The Collected Papers of Bertrand Russell, Volume 4 : Foundations of Logic 1903–05 (Editor).

“Zeit und Zeitlogik” (co-author Nicholas Rescher), in *Zustand und Ereignis*, ed. by Bertram Kienzle, Suhrkamp 1994 (partial translation of Temporal Logic).

“Complexity, Computational”, in *The Routledge Encyclopedia of Philosophy*, Vol. 2, 471–476.

“The Theory of Types”, to appear in *The Cambridge Companion to Russell*, edited by Nicholas Griffin.

Contributed sections of *Relevant Logics and their Rivals II*, edited by Ross Brady, forthcoming.

“Basic Many-Valued Logic,” in *Handbook of Philosophical Logic, Second Edition*, Ed. by Gabbay and Guenther, Vol. 2, 249–295, Kluwer 2001.

“Metatheory,” in *A Companion to Philosophical Logic*, ed. by Dale Jacquette, Blackwell 2002, 307–318.

“The Complexity of Propositional Proofs,” in *Current Trends in Theoretical Computer Science*, ed. by Păun, Rozenberg and Salomaa, World Scientific, Singapore 2001.

Sections §11.5 and §11.6 (pp. 217–230) in *Relevant Logics and their Rivals, Volume II*, edited by Ross Brady. Ashgate 2003.

“The Theory of Types”. In *The Cambridge Companion to Bertrand Russell*, edited by Nicholas Griffin, pp. 286–309. Cambridge University Press, 2003.

“Complexity”. Chapter 2 in *The Blackwell Guide to the Philosophy of Computing and Information*, edited by Luciano Floridi, Blackwell 2004.

“Proof systems” – invited chapter for *The Handbook of Boolean Functions* edited by Yves Crama and Peter Hammer. 20 pp.

“Russell on Meaning and Denotation,” in *On Denoting: 1905–2005*, edited by Bernard Linsky and Guido

Imaguire, Philosophia Verlag, 2005, pp. 99-120.

“Emil Post” – chapter in the *Handbook of the History of Logic, Volume 5*, edited by Gabbay and Woods. 50 pages.

“The Boundary between Mathematics and Physics,” in *The Philosophy of Mathematical Practice*, edited by Paolo Mancosu (Oxford University Press 2008), pp. 407-416.

“Mathematics and Physics: Strategies of Assimilation,” in *The Philosophy of Mathematical Practice*, edited by Paolo Mancosu (Oxford University Press 2008), pp. 417-440.

“Logic and Denotation,” in *Russell vs. Meinong: The Legacy of “On Denoting”*, edited by Nicholas Griffin and Dale Jacquette (Routledge 2008), pp. 10-25.

7. Non-refereed Publications

a. Articles

About 100 short reviews on papers in logic and mathematics *Mathematical Reviews*, 1973-85.

Review of *The Paradox of the Liar*, ed. by Robert Martin, *Dialogue*, Vol. 10, (1971), pp. 823-825.

Review of *The Development of Mathematical Logic*, by R.L. Goodstein, *Historia Mathematica*, Vol. 11, pp. 212-214.

Review of *Distributive Lattices*, by Balbes and Dwinger, *Journal of Symbolic Logic*, 40 (1975).

Review of *Classical Propositional Operators*, by Krister Segerberg, *Canadian Philosophical Review*, Vol. III, No. 6.

“Intensional Languages via Nominalisation”, *Pacific Journal of Philosophy*, 1981.

Review of *Mathematics in Philosophy*, by Charles Parsons, *History and Philosophy of Logic*, (1985).

Review of two papers on symbolic logic, *JSL* 1985.

Review of Routley et al. “Relevant Logics and their Rivals I” *Studia Logica* (1988).

Review of Rachel Garden “Modern Logic and quantum mechanics”, *Journal of Symbolic Logic*, Vol. 53, 648.

Review of J.M. Dunn, *J. of Symbolic Logic*, Vol. 54 (1989), pp. 615-16.

“Russell’s zigzag path to the ramified theory of types”, *Russell, N.S.* Vol. 8 (1988), pp. 82-91.

Review of Troelstra and van Dalen “Constructivism in Mathematics Volume 1”, *Studia Logica* 1989.

Review of Troelstra and van Dalen “Constructivism in Mathematics” Volume 2, *Studia Logica*, June 1991.

Review of Per Martin-Lof “Intuitionistic Type Theory”, *Studia Logica* 1990.

Review of Stephen Read “Relevant Logic”, *History and Philosophy of Logic*, Vol. 11 98-99.

Review of Jon Barwise “The situation in logic”, *Can. Phil. Rev.*, Vol. X, 96-8.

Review of Stuart Shapiro “Intensional Mathematics”, *Studia Logica*, April 1990.

Review of paper by D. Deutsch, *J. Symbolic Logic*, Vol. 55, 1309-10.

“Functional interpretations of feasibly constructive arithmetic” (extended abstract) in *Feasible Mathematics*, ed. Buss and Scott, Birkhauser 1990, 97-8.

Review of *Hermes* No. 7, in *Russell*, Vol. 11 (1991), 103-5.

Review of M. Detlefsen, “Proof and Knowledge in Mathematics”, *Canadian Phil. Reviews*, Vol. 12 (1992), 237-8.

Review of Rodriguez-Consuegra, “The Mathematical Philosophy of Bertrand Russell”, *Philosophia Mathematica* Vol. 1 (1993), 90-93.

Review of Hartry Field “Realism, mathematics and modality”, *History and Philosophy of Logic*, Vol. 14 (1993), 117-119.

Review of “Lectures on Linear Logic” by Anne Troelstra, *Can. Phil. Reviews*, Vol. 13, 126-128.

Review of “Russell’s Idealist Apprenticeship” by Nicholas Griffin, *Russell*, Vol. 13, 104-108.

Review of “Substructural Logics”, *History and Philosophy of Logic*, Vol. 16 (1995), 138-9.

Review of G. Malinowski, “Many-valued logics”, *Notre Dame Journal of Formal Logic*, Vol. 35, 469-70.

Review of “Russell and Analytic Philosophy,” *J. Symbolic Logic*, Vol. 61, 1391-2.

Review of “Feasible Mathematics II,” *J. of the I.G.P.L.* Vol. 5, 301-2.

Review of Jagdish Mehra, “The Beat of a Different Drummer,” *International Studies in the Philosophy of Science*, Vol. 11 (1997), 311-313.

Review of Sergei Goncharov, *Countable Boolean Algebras and Decidability*, *Studia Logica* Volume 63, 443-445

(1999).

Review of George Boolos, *Logic, Logic and Logic*, *Philosophy in Review*, Vol. 19, 244-246.

Review of Gregory Landini, *Russell's Hidden Substitutional Theory*, *J. of Symbolic Logic*, Vol. 64, 1370-71.

Review of Greg Restall, "An Introduction to Substructural Logics," *International Studies in the Philosophy of Science*, Vol. 15, 108-110.

Review of Bernard Linsky: "Russell's Metaphysical Logic," *University of Toronto Quarterly*, Volume 70, Number 1, Winter 2000-01, 455-457.

Review of Grattan-Guinness: "The search for mathematical roots 1870-1940," *Russell*, Volume 21, 91-94.

Review of Astroh and Read (eds.): Proceedings of the conference *Hugh MacColl and the Tradition of Logic*, *History and Philosophy of Logic*, 21 (2000), 308-314.

Review of Serge Lang: "Challenges", *International Studies in Philosophy of Science*, Vol. 16 (2002), 305-307.

"The Couturat-Russell Correspondence" (review of Schmid's edition of the correspondence between Louis Couturat and Bertrand Russell), *Russell*, Volume 22, pp. 188-193.

Review of Carlo Cercignani, "Ludwig Boltzmann: The man who trusted atoms." *International Studies in the Philosophy of Science*.

Review of David Corfield, *Towards a Philosophy of Real Mathematics*. *Canadian Philosophical Reviews*, Volume 24, No. 3, pp. 175-177 (June 2004).

Review of Fajardo and Keisler, *Model Theory of Stochastic Processes*, **Bulletin of Symbolic Logic**, Volume 10, pp. 110-112.

Review of Kit Fine, *The Limits of Abstraction*. *The Journal of Philosophy*, Volume 101, Number 11 (November 2004).

Review of Bertrand Russell, *Correspondance sur la philosophie, la logique et la politique avec Louis Couturat (1897 - 1913)*, forthcoming *Bulletin of Symbolic Logic*.

Review of Dunn and Hardegree, *Algebraic Methods in Philosophical Logic*, forthcoming **Studia Logica**.

Review of Kurt Gödel, *Collected Works, Volumes IV and V*, forthcoming *The Review of Modern Logic*.

Review of Bertrand Russell, *Correspondance sur la philosophie, la logique et la politique avec Louis Couturat (1897 - 1913)*. *Bulletin of Symbolic Logic*, Volume 11, pp. 442-444.

"Logic and Denotation" – forthcoming in the proceedings of the McMaster Conference on Russell and Meinong, edited by Dale Jacquette and Nicholas Griffin. 16 pages.

"The Unnameable" – forthcoming in special issue of *Dialogue* in honour of Hanz Herzberger, edited by Jamie Tappenden and Achille Varzi. 12 pages.

Review of Dunn and Hardegree, *Algebraic Methods in Philosophical Logic*, **Studia Logica**, Volume 79 (2005).

Review of *Nonstandard Methods and Applications in Mathematics*, edited by Cutland, Di Nasso and Ross, *Bulletin of Symbolic Logic*, Volume 13 (2007), pp. 372-374.

Review of *A First Course in Logic* by Shawn Hedman. *Bulletin of Symbolic Logic*, Volume 13 (2007), pp. 538-540.

Review of *Truth and Games: Essays in Honour of Gabriel Sandu*. *Bulletin of Symbolic Logic*, Volume 14 (2008), pp. 119-121.

Review of *Current topics in logic and analytic philosophy*, edited by Martínez, Falguera and Sagüillo, *Bulletin of Symbolic Logic*, Volume 14 (2008), pp. 271-272.

8. Manuscripts in preparation and submitted

The Mathematics of Mean Field models. Monograph on the foundations of statistical physics; in 2004 I wrote drafts of the first five chapters and the introduction. 56 pages.

"Algorithms and Complexity Results for Input and Unit Resolution" (co-authored with Alexander Hertel), submitted.

9. Papers presented at Meetings and Symposia

“A general theory of implication”, Association for Symbolic Logic Annual Meeting, December 1971, New York.
 “Free Heyting Algebras”, Association for Symbolic Logic Annual Meeting, Dallas, January 1973.
 “Implicational formulas in intuitionistic logic”, Association of Symbolic Logic Annual Meeting, Atlanta, December 1973.
 “Elementary classes in infinitary logic”, Association for Symbolic Logic, Spring Meeting, Chicago, April 1975.
 “A representation theory for lattices”, Universal Algebra Conference, Oberwolfach, West Germany, August 1976.
 “Congruence lattices and Heyting algebras”, Universal Algebra Conference, Esztergom, Hungary, July 1977.
 “Ockham lattices”, Canadian Mathematical Society Annual Meeting, Calgary, December 1977.
 “Equational classes of distributive double p-algebras”, read to American Mathematical Society special session on Varieties, Claremont, California, October 1978.
 “Projective distributive p-lattices”, American Mathematical Society session on Universal Algebra, Boulder, Colorado, March 1979.
 “Word problems for distributive lattice-ordered semigroups” Charleston Conference on Universal Algebra, July 1984.
 Talks to graduate forum (Philosophy) Fall 1982 and Fall 1983 on logic.
 “How do we know mathematical proofs are correct?”, talk to IHPST October 31, 1985.
 “The complexity of decision procedures in relevant logic”, presented at meeting of the Association for Symbolic Logic, Los Angeles, January 1989.
 “Are there absolutely undecidable mathematical propositions?” Talk to graduate forum, October 19 1989.
 “Complexity of propositional affine logic”, Logic, Methodology and Philosophy of Science, Cracow August 1999.
 “Four variables suffice,” Society for Exact Philosophy, Gainesville Florida, March 10 2000.
 “Complexity of Analytic Tableaux” (co-authors Noriko Arai and Toniann Pitassi), STOC 2001, Hersonnisos, Crete July 6-8.
 Society for Exact Philosophy, St. Louis Missouri May 23-26 2002. I hour talk: *The complexity of propositional proofs with the substitution rule*.
 Association for Symbolic Logic Annual meeting, June 1 2002. 20 minute contributed talk: *The complexity of propositional proofs with the substitution rule*.
 “The Logical Background to Russell’s Theory of Descriptions” – invited talk at the conference *Russell versus Meinong: 100 years after ‘On Denoting’*. 14 May 2005.
 “The Unnameable” – invited talk at logic mini-conference, Department of Philosophy, University of Calgary, November 4 2005.
 “Width versus size in resolution proofs” – invited lectures, *Theory and Applications of Models of Computation*, Beijing, May 2006.

10. *Invited Lectures*

“What is Relevant Implication?”, International Conference on Relevance Logics, St. Louis, September 1974.
 “How to put Routley and Meyer into a Comer”, University of Waterloo Conference on the Foundations of Logic, April 1982.
 “Undecidability of Relevant Implication”, Wollongong, Australia, July 1982.
 “Does Many-valued Logic make Sense?”, University of Melbourne, July 1982.
 “The Undecidability of Entailment and Relevant implication”, University of Western Ontario, November 1982, also University of Buffalo, February, 1983, University of Alberta, February 1984.
 “Russell’s Zig-Zag Path to the Ramified Theory of Types”, Conference on Russell’s Early Philosophy, University of Toronto, Summer 1984.
 “Intensional Languages via Nominalization”, Society for Exact Philosophy, Halifax 1980.
 “The Algebra of Entailment”, Asilomar conference on algebra and logic, July 1987.
 “The Geometry of Entailment”, Indiana University, 12 November 1987.
 “Complexity of Proofs in Propositional Logic”, Indiana University, 13 November 1987.

“Functional Interpretations of Feasible Arithmetic”, U. Pennsylvania, Mathematics Department, 7 December, 1987

“Functional Interpretations of Feasibly Constructive Arithmetic”, Conference on Feasible Mathematics, Cornell, June, 1989.

“Translation Problems in Modal Logic”, Society for Exact Philosophy, Edmonton, Alberta, August 1989.

“The complexity of propositional proof systems”, Berkeley conference on Logic from Computer Science, MSRI, November 1989.

“Failure of interpolation in relevant logics”, Kleene '90, Chaika, Bulgaria, July 1990.

“Complexity of proofs in classical propositional calculus”, Department of Mathematics, University of Waterloo, October 30 1990.

“Recent results in propositional complexity”, Dept. of Mathematics, McMaster University March 25 1991.

“Why are some tautologies harder to prove than others?” Society for Exact Philosophy, Victoria B.C. May 1991.

“Russellian Propositions” (co-author Judy Pelham), Conference on Logic, Methodology and Philosophy of Science, Uppsala, Sweden, August 1991.

“Russellian Propositions” (co-author Judy Pelham), U. of Buffalo Logic Colloquium October 1991.

“Propositional Complexity”, Talk to Mathematics Seminar, U. of Buffalo, October 1991.

“Complexity of decision procedures in relevant logic”, McGill University Mathematics Seminar November 1991.

“The complexity of the Hajos calculus”, “Mathematische Logik”, Mathematisches Forschungsinstitut Oberwolfach April 14 1992.

“Complexity of the Hajos construction”, logic workshop, U. of Victoria, B.C. July 3 1992.

“Recent results and open problems in classical propositional logic”, Association for Symbolic Logic Annual Meeting March 13 1993, Notre Dame, Indiana.

“Recent work in complexity theory”, talk to Logic and Philosophy of Science group, Toronto February 1994.

“Recent results in classical propositional logic”, talk to Toronto Set Theory seminar, April 6 1994.

“Complexity of propositional proofs”, invited lecture, Conference on Computational Logic, Indianapolis, October 14 1994.

“Russell and the Foundations of Logic 1903-05,” invited lecture, Annual Meeting, Association for Symbolic Logic, Irvine, California April 2 1995.

Lectures on propositional proof complexity, DIMACS Workshop on Feasible Mathematics and Proof complexity, Rutgers University, Center for Discrete Mathematics and Theoretical Computer Science, August 21-25 1995.

“The symmetry rule in propositional logic,” conference on the satisfiability problem, Siena, Italy, April 29 – May 3 1996.

“The graph constructions of Hajós and Ore,” talk to the University of Toronto combinatorics seminar October 12 1996.

“Complexity of Propositional Proofs,” talk to Philosophy Department Carnegie Mellon University, April 12 1997.

“Solution of a 2000-year-old logic problem,” Philosophy Department, University of Waterloo, November 14 1997.

“Is Gödel’s Theorem a red herring?” Talk to the University of Toronto Cognitive Science and Artificial Intelligence Students’ Association, January 15 1998.

“Resolution proofs of matching principles,” Satisfiability Workshop, Paderborn May 10-14 1998.

“Complexity of propositional affine logic”, Annual meeting, Association for Symbolic Logic, San Diego, March 22 1999.

“Complexity problems for substructural logics”, Canadian Mathematical Society Annual Meeting, Montréal December 1999.

“Local Symmetries in Propositional Logic,” International Conference on Analytic Tableaux and related methods, St. Andrews, Scotland July 5 2000.

“Riis’s complexity gap for tree resolution,” October 25 2000. Fields Institute, Model Theory and Complexity Theory Seminar.

“Russell’s Zig-Zag theory 1903-1905.” Read at the meeting *100 Years of Russell’s Paradox*, Munich, June

2-5 2001.

“Synonymous Theories,” read at the meeting of the Society for Exact Philosophy, Montreal, 14 May 2001.

“Complexity of Analytic Tableaux,” SAT testing workshop, Boston, June 15 2001.

“Anomalous Objects,” Department Colloquium, University of California at Irvine, Logic and Philosophy of Science Department, November 11 2001.

“Did Galileo contract legionnaire’s disease?” March 27 2002, IHPST, Victoria College.

“Research Frontiers in Propositional Logic,” Department of Mathematics, McMaster University, March 6 2002.

A Logical Approach to Philosophy: A workshop in philosophical logic in memory of Graham Solomon, University of Waterloo 9-10 May 2003. *The identity of proofs*, invited lecture May 10 2003 (oral presentation – not refereed).

Matrix identities and the pigeon-hole principle, May 15 2003 Computational Logic group, Simon Fraser University.

British Logic Colloquium, St. Andrews. *The identity of proofs*, September 4 2003, invited lecture (oral presentation – not refereed).

Non-rigorous mathematics – is it really mathematics? March 5 2004, invited lecture (oral presentation – not refereed). Laguna Workshop, Methodology of Pure and Applied Mathematics.

Duality Theory for Projective Algebras, invited lecture at the conference Relational Methods in Computer Science, Brock University February 22-26 2005.

“Ideas and Problems in Resolution Theorem Proving” – talk to the Peripatetic Logic Group, University of Calgary, November 3 2005.

“Three Annoying Problems” – talk to Stanford Logic Seminar, Stanford University, 10 January 2006.

“The Unnameable” – talk to the seminar on Logical Methods in the Humanities, Stanford University, January 12 2006.

“Is $P=NP$?” – invited lecture, Dalhousie University, 17 May 2007.

“Logic and Denotation” – invited talk, Dalhousie University, 18 May 2007.

“Complexity Problems for Substructural Logics” – invited talk, Logic Colloquium 2007 (European meeting of the Association for Symbolic Logic), July 18 2007.

“Regular and General Resolution: An Improved Separation,” invited lecture, *Theory and Applications of Satisfiability Testing – SAT 2008*, Guangzhou, China, May 14 2008.

D. List of courses (in preceding 5 years)

11. a. Undergraduate courses taught

PHL 245: Modern Symbolic Logic
PHL 246: Probability and inductive logic
PHL 345: Intermediate Logic
PHL 346: Philosophy of Logic and Mathematics
PHL 349: Set Theory
PHL 342: Minds and Machines
PHL 350: Philosophy of Language
PHL 231: Existence and Reality
PHL 344: Metalogic

b. Graduate courses taught

PHL 2121: Modern Logic
PHL 2124: Seminar in Logic (theory of entailment)
PHL 2124: Seminar in Logic (algebraic logic)
PHL 2087: Russell
PHL 2126: Foundations of Mathematics
PHL 2122: Advanced Logic (Seminar on Russellian propositions)
PHL 2192: Frege

c. Theses Supervised

Masters Students:

Giovanni Panti (Mathematics) 1990.
David McClurkin (Computer Science) 1991.
Oliver Schulte (Computer Science).
Francois Pitt (Computer Science).
Antonina Kolokolova (Computer Science) 1999-2000.
Alex Hertel (Computer Science) 2004.
Dennis Kao (Computer Science) 2003-2005.

Doctoral Students:

Gerald Charlwood. Thesis topic: Relevance Logic. Period of supervision: 1974-78. Thesis completed 1978. Primary supervisor
Pamela Ely. Thesis topic: Medieval Logic. Period of supervision: 1975-80. Thesis completed 1980. Secondary supervisor.
Merrie Bergmann. Thesis topic: Metaphysics. Period of supervision: 1975-77. Secondary supervisor.
Ben Russell. Thesis topic: Wittgenstein's Philosophy. Period of supervision: 1978-80. Completion date: 1980. Secondary supervisor.
Mark Vorobj. Thesis topic: Deontic Logic. Period of supervision: 1979-83. Primary supervisor.
Alejandro Garciadiego. Thesis topic: History of Foundations of Mathematics. Period of supervision: 1978-1980. Secondary supervisor.
Peter Turney. Thesis topic: Inductive Inference and Stability. Thesis completed 1988. Primary supervisor.
Arnold Silverberg. Thesis topic: Anti-Realism in Semantics and Logic. Thesis completed 1988. Primary supervisor.
Andre Vellino. Thesis topic: The complexity of automated reasoning. Thesis completed 1989. Primary supervisor.
Judith Pelham. Thesis topic: Russell on propositions and objects. Thesis completed September 1993. Primary supervisor.
Kent Peacock. Thesis topic: Space-time view of non-locality. Secondary supervision.
Andrew Malton (Computer Science Dept). Thesis topic: Functional Interpretation of Programming Methods. Secondary supervision.
Arvind Gupta (Computer Science Dept). Thesis topic: Constructivity in Tree Minors. Secondary supervision.
Frederic Portoraro. Thesis Topic: Automated theorem proving. Primary supervisor.
Xudong Fu (Computer Science). Thesis topic: Complexity of propositional proofs. Secondary supervision. Thesis completed February 1996.
Jeffrey Denson (Philosophy). Thesis topic: Objectivity in Frege. Primary supervisor. Withdrew from doctoral program 1995.
Arnold Rosenbloom (Computer Science). Secondary supervisor.
Achille Varzi (Philosophy). Secondary supervision. Thesis topic: General semantics. PhD completed: October 1994.
Francois Pitt (Computer Science). Secondary supervision. "A Quantifier-free String Theory for Alogtime Reasoning" PhD completed April 2000.
Anthony Jenkins. "The Nature of Logical Inquiry." Primary supervision.
C.K. Poon (Computer Science). Thesis topic: "The Complexity of the st-connectivity problem." PhD completed August 1995.
David Mitchell (Computer Science). Thesis topic: "Propositional Satisfiability Testing." Secondary supervision.
Tomoyuki Yamakami (Computer Science). Thesis topic: "Structure of average case hierarchies." Secondary supervision. PhD completed February 1997.
David Hyder (Philosophy). Thesis topic: "Helmholtz and Wittgenstein." PhD completed December 1996. Secondary supervision.

Mary Leng (Philosophy). Thesis topic: Philosophy of Mathematics. Secondary supervision.
 Francisco Gomez-Holtved: "Russell and the Foundations of Logic." Primary supervision.
 Michael Soltys (Computer Science): "Proof theory of linear algebra." Secondary supervision.
 Glen Hoffman (Philosophy): "Theory of Truth." Secondary Supervision. Thesis completed August 2003.
 Tsuyoshi Morioka (Computer Science): "Search Problems, Proof Complexity, Quantified Propositional Logic and Bounded Arithmetic." Secondary supervision. Completed PhD December 2004.
 Joshua Buresh-Oppenheim (Computer Science): "Randomness in proof complexity." Secondary supervision. Completed PhD August 2004.
 Antonina Kolokolova (Computer Science): "Systems of Bounded Arithmetic from Descriptive Complexity." Secondary supervision. Completed PhD August 2004.
 Alan Skelley (Computer Science): "Bounded arithmetic and complexity classes." Secondary supervision. PhD completed November 2005.
 Julien Beillard (Philosophy). Secondary supervision.
 Benet Devereux (Computer Science). Secondary supervision.
 Arie Gurfinkel (Computer Science). Secondary supervision.
 Shiva Nejati (Computer Science). Secondary supervision.
 Pablo Barcelo (Computer Science). Secondary supervision.
 Omar Nasim (Philosophy): "The Concept of Construction in early Analytic Philosophy." Primary supervision.
 Alex Hertel (Computer Science): "Topics in proof complexity and algorithmic complexity." Primary supervision. Completed PhD May 2008.
 Sorin Bangu (Philosophy). Secondary supervision.
 Babak Farzad (Computer Science). Secondary supervision. PhD completed August 2005.
 Philipp Hertel (Computer Science). Secondary supervision.
 Steven Perron (Computer Science). Secondary supervision.
 Phuong Nguyen (Computer Science). Secondary supervision.

12. Administrative Positions

1970-72 Scholarships and Awards Committee, Erindale College
 1973-74, 1974-75 Search Committee
 1974-75, 1977-80 Personnel Committee
 1978-79 Discipline Representative, Erindale College
 1980-83 UTFA Representative
 1979 Tenure Committee
 1980 Promotion Committee
 Served on thesis committee, James Hoover, Department of Computer Science.
 Wrote internal appraisal for Tom Archibald (IHPST, May 1987) Ph.D. Thesis.
 Martha Lile Love Award Committee 1992.
 Promotion Committee, J.R. Brown 1991.
 Search Committee, 1991-2.
 Co-ordinator, Logic and Philosophy of Science group 1994 -
 Member, Mathematical Sciences Review Panel, 1994.
 Member, committee for Connaught awards, 1994-7; chair 1995-6
 Member, reading committee, tenure decisions for Peter Apostoli, Michael Glanzberg, Philip Kremer.
 Promotions Committee member, IHPST.
 Graduate Coordinator, Department of Philosophy, 2001-02.