

Curriculum Vitae (June 2016)

Jon Michael Dunn

Professor Emeritus of Informatics and Computer Science,
and Oscar Ewing Professor of Philosophy

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Research Areas Information Based Logics, Algebraic Logic, Substructural Logics (especially Relevance Logic), Proof Theory, Type Theory, Quantum Logic and Computation Relations Between Logic and Computer Science

Degrees Philosophy A.B. (High Honors), Oberlin College, 1963
Philosophy (Logic) Ph.D. (Logic), University of Pittsburgh, 1966

Dissertation Title *The Algebra of Intensional Logics*
Director: Nuel D. Belnap, Jr.

Erdős Number 3: (J. Michael Dunn, Nuel D. Belnap, Joel Spencer, Paul Erdős) or
(J. Michael Dunn, Mai Gehrke, Marcel Erne, Paul Erdős)

Positions

1966-69 Assistant Professor, Dept. of Philosophy, Wayne State University,
Detroit, Michigan (on leave, 1968-69)

1969-76 Associate Professor, Department of Philosophy, Indiana University,
Bloomington

1973-2007 Associate Faculty Member, Department of History and Philosophy of Science,
Indiana University, Bloomington

1976-89 Professor, Department of Philosophy, Indiana University, Bloomington

1980-84 Chair, Department of Philosophy, Indiana University, Bloomington

1987-88 Adjunct Professor, Department of Computer Science, Indiana University,
Bloomington

1988-91 Associate Dean (for Planning), College of Arts and Sciences, Indiana
University, Bloomington

1989-2007 Core Faculty, Cognitive Science Program, Indiana University, Bloomington

- 1989-2007 Professor, Department of Computer Science, Indiana University, Bloomington
- 1989-2007 Oscar R. Ewing Professor of Philosophy, Indiana University, Bloomington
- 1991-93 Executive Associate Dean (for Academic Affairs), College of Arts and Sciences, Indiana University, Bloomington
- 1994-97 Chair, Department of Philosophy, Indiana University, Bloomington
- 1999 Director, Office for Informatics (charged to organize a new School of Informatics), Indiana University
- 1999-2002 Dean, School of Informatics, Indiana University
- 2000-2007 Professor of Informatics
- 2002-2007 University Dean, School of Informatics, Indiana University
- 2007- Professor Emeritus of Informatics and Computer Science, Oscar Ewing Professor Emeritus of Philosophy
- Spring 2014 Visiting Professor, Department of Philosophy, University of Pittsburgh

Awards, Honors, Fellowships, Visiting Positions, etc.

- 1959-63 National Merit Scholar
- 1963-64 Woodrow Wilson Fellow; Honorary Andrew Mellon Fellow
- 1964-65 Andrew Mellon Fellow
- 1965-66 Woodrow Wilson Dissertation Fellow; Honorary Andrew Mellon Fellow
- 1967 Travel Grants from Wayne State and NSF to attend International Congress for Logic, Methodology, and Philosophy of Science (Amsterdam)
- 1968 Wayne State University Faculty Research Fellow (declined to visit Yale)
- 1968-69 Visiting Assistant Professor of Philosophy, Yale University
- 1969-74 Principal Investigator (with R. K. Meyer), NSF Research Grant for project, "A Theory of Logical Implication," approximately, \$55,000
- 1975 National Endowment for the Humanities Fellowship for Independent Study and Research (declined to accept Visiting Fulbright below)

- 1975-76 Research Senior Scholar under Fulbright-Hays via grant from Australian American Educational Foundation. Visiting Fellow, The Australian National University, Institute for Advanced Studies, Research School of Social Sciences
- 1978 Senior Visitor, Mathematical Institute, Oxford, England. Senior Common Room, Wadham College.
- 1979 Indiana University Faculty Summer Fellowship
- 1979 Travel grants from Indiana University and National Academy of Sciences to attend Torun and Hannover Conferences. Guest of Polish Academy of Sciences.
- 1982 Short-term Visitor, Wolfson College, Oxford
- 1983 Faculty Visiting Scholar, Distinguished Visitor Program, University of Melbourne
- 1984-85 American Council of Learned Societies Fellow. Fellow, Indiana University Institute for Advanced Study (Fall). Senior Fellow, University of Pittsburgh Center for the Philosophy of Science (November). Adjunct Professor, Department of Philosophy, University of Massachusetts-Amherst (Spring).
- 1985 Course Development Grant, Indiana University, for "cluster course" in Logic, Modeling, and Decision-Making (a logic course taught in conjunction with courses in mathematics and philosophy of science)
- 1985- Selected for *Who's Who in America*, and for *Who's Who in the World 2005*
- 1986 Summer Faculty Fellowship, Indiana University
- 1988 Visiting Consultant, Center for Information Science Research, The Australian National University
- 1994 Visitor (May-June), Institute for American and European Studies, Academia Sinica, Taipei
- 1996 Visitor (June), Moscow State University and the Russian Academy of Sciences
- 1999 Member of proposal team for IPCRES (Indiana Pervasive Computing Research Initiative), funded by Lilly Endowment for \$30 million over 5 years, \$3 million of which supported School of Informatics program development.
- 2001-02 PI Institute for Museum and Library Studies Grant for Digital CLIOH Project (Digital Cultural Library Indexing our Heritage), \$250,000

- 2001 Techpoint (Indiana Information Technology Association) Mira Award for Outstanding Information Technology Educator
- 2002 Techpoint (Indiana Information Technology Association) Mira Award to the School of Informatics for Outstanding Education Contribution to Information Technology
- 2004 Elected Honorary Member of Phi Beta Kappa
- 2006 Bookends Award at annual i-Schools Conference for “vision and pioneering leadership in the formation of the i-schools community”
- 2007 Indiana University Bloomington Provost’s Medallion
- 2007 Sagamore of the Wabash, the highest honor an Indiana Governor bestows
- 2009 Listed in the *International Directory of Logicians: Who’s Who in Logic*, Dov Gabbay and John Woods eds, College Publications, London.
- 2010 Fellow of the American Academy of Arts and Sciences.
- 2013 Senior Visiting Fellow, Info-metrics Institute, American University, October.
- 2014 Visting Professor, Department of Philosophy, University of Pittsburgh, spring semester.
- 2016 Selected as subject of book in Springer’s Outstanding Contributions to Logic series, vol. 8, *J. Michael Dunn on Information Based Logics*, ed., Katalin Bimbó, 436 + xliii pp. Springer: “Outstanding Contributions to Logic puts focus on important advances in modern logical research. Each volume is devoted to a major contribution by an eminent logician.”

Member

- American Academy of Arts and Sciences
- Association for Symbolic Logic
- American Philosophical Association
- Society for Exact Philosophy
- Philosophy of Science Association
- Association for Computing Machinery

Ph.D. Dissertations Directed

1. Dolph Ulrich (Philosophy), *Characteristic Matrices for Sentential Calculi*, 1967: Wayne State University
2. James Freeman (Philosophy), *Algebraic Semantics for Modal and Relevant Predicate Logics*, 1973
3. Randal Dipert (Philosophy), *Development and Crisis in Late Boolean Logic: The Deductive Logics of Peirce, Jevons and Schröder*, 1978
4. Daniel Cohen (Philosophy), *The Logic of Conditional Assertions*, 1983 (with N. Belnap)
5. Edwin Mares (Philosophy), *On the Logic of Fictional Discourse*, 1990
6. Yu-Houng Houng (Philosophy and Cognitive Science), *Von Neumann Models versus Connectionist Models for Mind*, 1991
7. Gordon Beavers (Philosophy), *The Infinite-valued Lukasiewicz Logic* (won Graduate School's Esther Kinsley Prize for best two dissertations of the year), 1992 (with W. Wheeler)
8. Gerard Allwein (Computer Science), *The Duality of Algebraic and Kripke Models for Linear Logic*, 1992
9. David Chalmers (Philosophy and Cognitive Science), *Toward a Theory of Consciousness*, 1993 (with D. Hofstadter)
10. Chrysafis Hartonas (Philosophy and Mathematics), *Algebraic and Kripke Semantics for Substructural Logics*, 1993 (with J. Barwise)
11. Paul Syverson (Philosophy), *Logic, Convention, and Common Knowledge*, 1993
12. Raymundo Morado (Philosophy), *Fault Tolerant Reasoning*, 1994
13. Gregg Rosenberg (Philosophy and Cognitive Science), *A Place for Consciousness: Probing the Deep Structure of the Natural World*, 1997
14. Katalin Bimbó (Philosophy and Cognitive Science), *Substructural Logics, Combinatory Logic, and Lambda Calculus*, 1999
15. Pragati Jain (Philosophy), *Validity and its Epistemic Role*, 2004 (with Anil Gupta)
16. Yuko Murakami (Philosophy), *Modal Logic of Partitions*, 2005 (with L. Moss)
17. Chunlai Zhou (Mathematics), *A Complete Deductive System for Probability Logic with Application to Harsanyi Type Spaces*, 2007 (with L. Moss)

Research

Articles and Books Published (Many of my publications are available on-line from ResearchGate https://www.researchgate.net/profile/Jon_Dunn/publications.)

1. 1966. *The Algebra of Intensional Logics*. University of Pittsburgh doctoral dissertation. Ann Arbor (University Microfilms).
2. 1967. (Abstract) "Homomorphisms of Intensionally Complemented Distributive Lattices" (with N. D. Belnap, Jr.), *Journal of Symbolic Logic*, 32, p. 446.
3. 1967a. (Abstract) "The Effective Equivalence of Certain Propositions about de Morgan Lattices," *Journal of Symbolic Logic*, 32, pp. 433-434.
4. 1967b. "Drange's Paradox Lost," *Philosophical Studies*, 18, pp. 94-95.
5. 1967c. (Abstract) "An Algebraic Completeness Proof for the First Degree Fragment of Entailment," *Abstracts of Papers: Third International Congress for Logic, Methodology and Philosophy of Science*, Amsterdam, p. 9.
6. 1968. "Homomorphisms of Intensionally Complemented Distributive Lattices" (with N. D. Belnap, Jr.), *Mathematische Annalen*, 176, pp. 28-38.
7. 1968a. (Abstract) "Representation Theory of Normal R-Mingle Matrices," *Journal of Symbolic Logic*, 33, p. 637.
8. 1968b. "The Substitution Interpretation of the Quantifiers" (with N. D. Belnap, Jr.), *Noûs*, 2, pp. 177-85.
9. 1968c. (Abstract) "Entailment Logics and Material Implication" (with R.K. Meyer), *Notices of the American Mathematical Society*, 15, pp. 1021-1022.
10. 1969. "E, R, and Gamma" (with R. K. Meyer), *Journal of Symbolic Logic*, 34, pp. 460-474. Reprinted with alterations by A. R. Anderson and N. D. Belnap, Jr. in their book *Entailment: The Logic of Relevance and Necessity*, vol. 1, Princeton (Princeton University Press), 1975, sec. 25.2, pp. 300-314.
11. 1970a. (Abstract) "Extensions of RM and LC," *Journal of Symbolic Logic*, 35, p. 360.
12. 1970. (Abstract) "Comments on N. D. Belnap, Jr.'s 'Conditional Assertion and Restricted Quantification'," *Noûs*, IV, p. 13.
13. 1970b. "Algebraic Completeness Results for R-Mingle and its Extensions," *Journal of Symbolic Logic*, 35, pp. 1-13.

14. 1971. "Algebraic Completeness Results for Dummett's LC and its Extensions" (with R. K. Meyer), *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik*, 17, pp. 225-230.
15. 1971a. (Abstract) "An Intuitive Semantics for First Degree Relevant Implications," *Journal of Symbolic Logic*, 36, pp. 362-363.
16. 1972. "A Modification of Parry's Analytic Implication," *Notre Dame Journal of Formal Logic*, XIII, pp. 195-205.
17. 1973 (Abstract) "A 'Gentzen System' for Positive Relevant Implication," *Journal of Symbolic Logic*, 38, pp. 356-357.
18. 1973a. "A Truth-Value Semantics for Modal Logic," in *Truth, Syntax and Modality*, Amsterdam (North Holland Publishing Co.), pp.87-100.
19. 1974. "Completeness of Relevant Quantification Theories" (with R. K. Meyer and H. Leblanc), *Notre Dame Journal of Formal Logic*, XV. pp. 97-121.
20. 1975. (Book) *Proceedings of the 1975 International Symposium on Multiple-Valued Logic* (editor with G. Epstein, N. Cocchiarella, S. Shapiro), Bloomington (Indiana University Publications), 475 pp.
21. 1975a. "Intensional Algebras," in *Entailment: The Logic of Relevance and Necessity*, vol. 1, principal authors A. R. Anderson and N. D. Belnap, Jr., contributions by J. M. Dunn and R. K. Meyer, with further contributions by others, Princeton (Princeton University Press), 18, pp. 180-206.
22. 1975b. "The Algebra of R," *ibid.*, 28.2, pp. 352-371.
23. 1975c. "Consecution Formulation of Positive R," *ibid.*, 28.5, pp. 381-91.
24. 1975d. "Extensions of RM," *ibid.*, 29.3, pp. 420-429.
25. 1975e. "Axiomatizing Belnap's Conditional Assertion," *Journal of Philosophical Logic*, 4, pp. 383-397.
26. 1976. "Intuitive Semantics for First-Degree Entailments and Coupled Trees," *Philosophical Studies*, 29, pp. 149-168.
27. 1976a. (Abstract) "A Natural Family of Sentential Calculi Intermediate Between R and R-Mingle," *Journal of Symbolic Logic*, 41, p. 553.
28. 1976b. "A Kripke-Style Semantics for R-Mingle Using a Binary Accessibility Relation," *Studia*

Logica, 35, pp. 163-172.

29. 1976c. "A Variation on the Binary Semantics for RM," *Relevance Logic Newsletter*, 1, pp. 56-67.
30. 1976d. "Quantification and RM," *Studia Logica*, 35, pp. 315-322.
31. 1977. (Book) *Modern Uses of Multiple-Valued Logic* (editor with G. Epstein), Dordrecht, Holland (D. Reidel Publishing Co.), 338 pp.
32. 1978. (Abstract) "A Theorem in 3-Valued Model Theory with Connections to Number Theory, Type Theory, and Relevant Logic," *Journal of Symbolic Logic*, 43, pp. 615-616.
33. 1979. "R-Mingle and Beneath. Extensions of the Routley-Meyer Semantics for R," *Notre Dame Journal of Formal Logic*, 38, pp. 149-169.
34. 1979a. "A Theorem in 3-Valued Model Theory with Connections to Number Theory, Type Theory, and Relevant Logic," *Studia Logica* (special issue: Problems in Relevance Logic), 38, pp. 149-169.
35. 1979b. "Relevant Robinson's Arithmetic," *Studia Logica*, 38, pp. 407-418.
36. 1979c (Abstract) "A Sieve for Entailments," *Abstracts of Papers: Sixth International Congress of Logic, Methodology and Philosophy of Science* (Secs. 5.7), pp. 1-5.
37. 1979d. "Curry's Paradox" (with R. K. Meyer and R. Routley), *Analysis*, 39, pp. 124-128.
38. 1980. "A Sieve for Entailments," *Journal of Philosophical Logic*, 9, pp. 41-57.
39. 1980a. "A Consecution Calculus for Positive Relevant Implication with Necessity: (with N. D. Belnap, Jr. and A. Gupta), *Journal of Philosophical Logic*, 9, pp. 343-362.
40. 1980b. "Anderson-Belnap and Lewy on Entailment," *Proceedings of the Sixth International Congress of Logic, Methodology and Philosophy of Science*, editors L. J. Cohen, J. Kos, H. Pfeiffer, and K P. Podewski, Amsterdam (North Holland Pub. Co.), Ch.10, pp. 287-293.
41. 1981. "Entailment and the Disjunctive Syllogism" (with N. D. Belnap, Jr.), *Contemporary Philosophy: A New Survey, Vol. 1, Philosophy of Language/Philosophical Logic*, eds. G. Floistad and G. H. von Wright, Martinus Nijhoff, The Hague, pp. 337-366.
42. 1982. "Quantum Mathematics": *PSA 80*, vol. 2, eds. P. Asquith and R. Giere, Philosophy of Science Association, East Lansing, Michigan.
43. 1982a. "A Relational Representation of Quasi-Boolean Algebras," *Notre Dame Journal of Formal Logic*, 23, pp. 353-357.

44. 1986. "Relevance Logic and Entailment," in *Handbook of Philosophical Logic*, vol. 3, eds. D. Gabbay and F. Guenther, D. Reidel, Dordrecht, Holland, pp. 117-224.
45. 1986a. "Dualling: A Critique of an Argument of Popper and Miller" (with G. Hellman), *The British Journal for the Philosophy of Science*, 37, pp. 220-223.
46. 1987. "Relevant Predication 1: The Formal Theory," *Journal of Philosophical Logic*, vol. 16, pp. 347-381.
47. 1987a. "Incompleteness of the Binary Semantics for R," *Bulletin of the Section of Logic*, Polish Academy of Sciences, Institute of Philosophy and Sociology, pp. 107-110.
48. 1988. "The Impossibility of Certain Higher-Order Non-Classical Logics without Extensionality," in *Philosophical Analysis: A Defense by Example* (A Festschrift for E. Gettier), ed. D. Austin, D. Reidel Publishing Company, pp. 261-279.
49. 1989. "The Frame Problem and Relevant Predication," in *Knowledge Representation and Defeasible Reasoning*, H. Kyburg, R. Loui, and C. Carlson eds., Kluwer Academic Publishers, pp. 108-116. (Preprinted in Automated Reasoning Project Research Paper Series, The Australian National University, 1988).
50. 1989a. "Gentzen's Cut and Ackermann's Gamma" (with R. K. Meyer), in *Directions in Relevance Logic*, eds. J. Norman and R. Sylvan, Kluwer Academic Publishers, pp. 229-240.
51. 1990. "Relevant Predication 2: Intrinsic Properties and Internal Relations," *Philosophical Studies*, pp. 177-206.
52. 1990a. "Relevant Predication 3: Essential Properties," in *Truth or Consequence: (Book) Truth or Consequences: Essays in Honor of Nuel Belnap*, eds. J. M. Dunn and A. Gupta, Kluwer Academic Publishers, pp. 77-95.
53. 1990b. (Book) *Truth or Consequences: Essays in Honor of Nuel Belnap*, eds. J. M. Dunn and A. Gupta, Kluwer Academic Publishers, 378 + xii pp.
54. 1990c. "Gaggle Theory, an Abstraction of Galois Connections and Residuation, with Applications to Negation, Implication, and Various Logical Operators," in *Logics in AI (JELIA 1990, Amsterdam)*, ed. J. Van Eijck, Lecture Notes in AI, Springer Verlag, pp. 31-51. Preliminary version in IU Logic Group Preprint Series IULG-91-3, 1991.
55. 1992. (Book) *Entailment: The Logic of Relevance and Necessity*, vol. 2 (with A. R. Anderson and N. D. Belnap, Jr.), Princeton University Press, 749 + xxvii pp.

56. 1992a. "Recent Work at the Interface of Logic, Combinatorics, and Computer Science," (with J. Franco and W. Wheeler), *Annals of Mathematics and Artificial Intelligence*, 6, pp. 1-16.
57. 1993. "Partial-Gaggles Applied to Logics with Restricted Structural Rules," in *Substructural Logics*, eds. P. Schroeder-Heister and K. Dosen, Oxford Press, pp. 63-108. Preliminary version in Indiana University Logic Group Preprint Series IULG-93-22, 1993, 52 pp.
58. 1993a. "Kripke Models for Linear Logic," (with Gerard Allwein), *The Journal of Symbolic Logic*, vol. 58, June 1993, pp. 514-545.
59. 1993b. "Star and Perp: Two Treatments of Negation," in *Philosophical Perspectives* vol.7: *Language and Logic*, ed. James Tomberlin, pp. 331-357. Preliminary version in Indiana University Logic Group Preprint Series IULG-93-21, 1993, 36 pp.
60. 1995 "Gaggle Theory Applied to Modal, Intuitionistic, and Relevance Logics," in *Logik und Mathematik: Frege-Kolloquium Jena*, eds. I. Max and W. Stelzner, de Gruyter, pp. 335-368. Preliminary version in Indiana University Logic Group Preprint Series IULG-95-30, 1995, 34 pp.
61. 1995a "Positive Modal Logic," *Studia Logica*, 55, pp. 301-317. Preliminary version in Indiana University Logic Group Preprint Series IULG-95-31, 1995, 19 pp.
62. 1996 "Generalized Ortho-Negation," in *Negation: A Concept in Focus*, ed. H. Wansing, de Gruyter, pp. 3-26.
63. 1996a "A Logical Framework for the Notion of Natural Property," in *The Cosmos of Science*, eds. J. Earman and J. D. Norton, Pittsburgh-Konstanz Series in the Philosophy and History of Science, University of Pittsburgh Press and Universitäts Verlag Konstanz, 1996, pp. 458-497.
64. 1996b. "Is Existence a (Relevant) Predicate?" *Philosophical Topics*, vol. 24, no. 1, spring 1996, pp. 1-34.
65. 1997 "Combinators and Structurally Free Logic" (with R. K. Meyer), *Journal of the Interest Group in Pure and Applied Logic*, Oxford University Press, vol. 5, 1997, pp. 505-537.
66. 1997a. "Stone Duality for Lattices" (with C. Hartonas), *Algebra Universalis*, vol. 37, 1997, pp. 391-401. Preliminary version, "Duality Theorems for Partial Orders, Semilattices, Galois Connections and Lattices" in Indiana University Logic Group Preprint Series IULG-93-26, 1993, 27 pp.
67. 1998 "Two Extensions of the Structurally Free Logic LC" (with K. Bimbó), *Journal of the*

Interest Group in Pure and Applied Logic, Oxford Univ. Press, vol. 6, pp. 403-424.

68. 1999 "A Comparative Study of Various Semantical Treatments of Negation: A History of Formal Negation," in *What is Negation*, eds. D. Gabbay and H. Wansing, Kluwer Academic Publishers, pp. 23-51.
69. 2000 (Abstract) "Dual Combinators Bite the Dust" (with K. Bimbó and R. K. Meyer), *The Bulletin of Symbolic Logic*, vol. 4, pp. 443-464.
70. 2000a (Abstract) "The Key to the Universe -- Intersection Types, Lambda, CL and Relevant Entailment"(with R. K. Meyer, M. Dezani, Y. Motohama, and R. Sylvan), *The Bulletin of Symbolic Logic*, vol. 6, pp. 252-253.
71. 2000 "Partiality and its Dual," *Partiality and Modality*, eds. E. Thijsse, F. Lepage, and H. Wansing, special issue of *Studia Logica*, vol. 66, pp. 5-40.
72. 2001 (Book) *Algebraic Methods in Philosophical Logic* (with G. Hardgree), Oxford University Press, 470 + xv pages.
73. 2001a "The Concept of Information and the Development of Modern Logic," in *Zwischen traditioneller und moderner Logik: Nichtklassische Ansätze (Non-classical Approaches in the Transition from Traditional to Modern Logic)*, ed. W. Stelzner and Manfred Stöckler, Mentis-Verlag, Paderborn, pp. 423-447.
74. 2001b "The Trilattice of Constructive Truth Values," with Y. Shramko and T. Takenaka, *Journal of Language and Computation*, vol. 11, pp. 761- 788.
75. 2001c "Ternary Relational Semantics and Beyond: Programs as Data and Programs as Instructions," *Logical Studies* (on line journal), no. 7, Institute of Logic, Russian Academy of Sciences, Special Issue: Proceedings of the International Conference *Third Smirnov Readings* (Moscow, May 24-27, 2001), Part 2, <http://www.logic.ru/LogStud/>, 20 pp.
76. 2001d "A Representation of Relation Algebras Using Routley-Meyer Frames," *Logic, Meaning and Computation: Essays in Memory of Alonzo Church*, eds. C. A. Anderson and M. Zeleny, pp. 77-108. Preliminary version in Indiana University Logic Group Preprint Series, IULG-93-28, 1993.
77. 2002 "Relevance Logic" (with G. Restall), *Handbook of Philosophical Logic*, 2nd edition, vol. 6, eds. D. Gabbay and F. Guenther, Kluwer Academic Publishers, pp. 1-128.
78. 2003 "Ternary Semantics for Dynamic Logic, Hoare Logic, Action Logic, etc.," Smirnov's Readings 4, Institute of Logic, Russian Academy of Sciences, pp. 70-71.
79. 2003a "Four-valued Logic" (with K. Bimbó), *Notre Dame Journal of Formal Logic*, vol. 42, pp.

- 171-192.
80. 2005 "Quantum Logic as Motivated by Quantum Computing," *The Journal of Symbolic Logic* (with Tobias J. Hagge, Lawrence S. Moss, and Zhenghan Wang), vol. 70, pp. 353-359.
 81. 2005a "Relational Semantics for Kleene logic and Action Logic" (with K. Bimbó), *Notre Dame Journal of Formal Logic*, vol. 46, no. 4, pp. 461-490.
 82. 2005b "Canonical Extensions of Ordered Algebraic Structures and Relational Completeness of Some Substructural Logics" *The Journal of Symbolic Logic* (with Mai Gehrke and Alessandra Palmigiano), vol. 70, no. 3, pp.713-740.
 83. 2005c "Negation in the Context of Gaggle Theory" (with Chunlai Zhou), *Studia Logica*, vol. 80, nos. 2 and 3, Special Issue on Negation in Constructive logic, eds. Heinrich Wansing, Sergei Odintsov, and Yaroslave Shramko, pp. 235-264.
 84. 2008 *Generalized Galois Logics. Relational Semantics of Nonclassical Logical Calculi* (with K. Bimbó), CSLI Lecture Notes, University of Chicago Press, 382 pp. + x.
 85. 2008a "Information in Computer Science," *Handbook of the Philosophy of Information*, eds. J. van Benthem and P. Adriaans, Elsevier. pp. 581-608.
 86. 2008b (Abstract) "Canonicity in Symmetric Generalized Galois Logics" (with K. Bimbó), *Bulletin of Symbolic Logic*, vol. 15, p. 240.
 87. 2009 "Relevance Logic and Relational Algebras" (with Katalin Bimbó and Roger Maddux, *The Review of Symbolic Logic*, vol. 2, pp. 102-131.
 88. 2009a "Symmetric Generalized Galois Logics" (with Katalin Bimbó), *Logica Universalis*, vol. 3, pp. 125-153.
 89. 2009b "Calculi for Symmetric Generalized Galois Logics" (with Katalin Bimbó), in Brame, M. and D. R. Willingham (eds.), *Festschrift to Joachim Lambek, Linguistic Analysis*, vol. 36, pp. 307-344.
 90. 2010 "Contradictory Information: Too Much of a Good Thing," *Journal of Philosophical Logic*, vol. 39, pp. 425-452.
 91. 2012 "On the Ternary Relation and Conditionality," (with Jc Beall, Ross Brady, J. Michael Dunn, Allen Hazen, Edwin Mares, Robert K. Meyer, Graham Priest, Greg Restall, David Ripley, John Slaney, and Richard Sylvan (formerly Routley)), *Journal of Philosophical Logic*, vol. 41, pp. 595-612.
 92. 2012a (Abstract) "From Relevant Implication to Ticket Entailment" (with Katalin Bimbó), *The Bulletin of Symbolic Logic*, vol. 18, p. 288.

93. 2012b "A New Consecution Calculus for R_{\rightarrow} " (with Katalin Bimbó), *Notre Dame Journal of Formal Logic*, vol. 53, pp. 491-509.
94. 2013 (Abstract) "The Decision Problem of T_{\rightarrow} " (with Katalin Bimbó), *The Bulletin of Symbolic Logic*, vol. 19, pp. 226-227.
95. 2013a "On the Decidability of Implicational Ticket Entailment" (with Katalin Bimbó), *The Journal of Symbolic Logic*, vol. 78, pp. 214-236.
96. 2013b "The Third Life of Quantum Logic: Quantum Logic Inspired by Quantum Computing" (with Lawrence S. Moss and Zhenghan Wang), *Journal of Philosophical Logic*: vol. 42, pp. 443-459.
97. 2014 "Some Stories and Theorems Inspired by Raymond Smullyan," in *Four Lives: A Celebration of Raymond Smullyan*, ed. Jason Rosenhouse with an Afterword by Raymond Smullyan, pp. 65-75, Dover Publications, Inc., Mineola NY.
98. 2014a "Extracting BB'IW Inhabitants of Simple types from Proofs in the Sequent Calculus LT_{\rightarrow} for Implicational Ticket Entailment" (with Katalin Bimbó), *Logica Universalis*, vol. 8, pp. 141-164.
99. 2014b "A Conversation about Hector by Two of his Colleagues" (with Paul Eisenberg), *Castañeda and his Guises*, ed. Adriano Palma, pp. 15-18, Walter de Gruyter.
100. 2014c "Arrows Pointing at Arrows: Arrow Logic, Relevance Logic and Relation Algebras," in eds. A. Baltag and S. Smets, *On Logic and Information Dynamics*, Outstanding Contributions to Logic, Springer, pp. 881-894.
101. 2014d (Abstract) "Inhabitants of T_{\rightarrow} Theorems (with Katalin Bimbó), *Bulletin of Symbolic Logic*, vol. 20, p. 123.
102. 2014e (Abstract) "Combinatory Inhabitants of R_{\rightarrow} Theorems Extracted from Sequent Calculus Proofs," *Bulletin of Symbolic Logic*, vol. 20, pp. 258-259.
103. 2015 (Abstract) "On the Decidability of Classical Linear Logic," *Bulletin of Symbolic Logic*, forthcoming.
104. 2015a "The Relevance of Relevance to Relevance Logic," in *Logic and its Applications*, eds. Mohua Banerjee and Shankara Narayanan Krishna, *Lecture Notes in Computer Science* 8923, Proceedings of 6th Indian Conference on Logic and its Applications, ICLA 2015, Mumbai, January 8-10, 2015, pp. 11-29, Springer.
105. 2015b (Abstract) "Various Interpretations of the Ternary Accessibility Relation",

Smirnov's Readings 9, Sovremennye Tetradi, Moscow, pp. 10-13.

106. 2016 "An Engineer in Philosopher's Clothing," autobiography in *J. Michael Dunn on Information Based Logics*, ed., Katalin Bimbó, Outstanding Contributions to Logic, vol. 8, Springer, pp. xvii-xxxv.
107. 2016a "A 'Reply' to My 'Critics'," in *J. Michael Dunn on Information Based Logics*, ed., Katalin Bimbó, Outstanding Contributions to Logic, vol. 8, Springer, pp. 417-435.
108. 201+a "Larisa Maksimova's Early Contributions to Relevance Logic" (with Katalin Bimbó), 24 pp., accepted.
109. 201+b "Humans as Rational Toolmaking Animals," in *Foundations of Logic*, ed. Dmitri Zaitsev, Synthese Library - Studies in Epistemology, Logic, Methodology, and Philosophy of Science, Springer.
110. 201+c "Modalities in Lattice-R (with Katalin Bimbó), 37 pp., submitted.

Reviews

1. 1978 Review of Hugues Leblanc's *Truth-value Semantics*, *Journal of Symbolic Logic*, vol. 43, pp. 376-377.
2. 1971 Review of Jaako Hintikka's *Philosophy of Mathematics*, *American Mathematical Monthly*, vol. 78, p. 91
3. 2013 "Guide to the Floridi Keys," Essay Review of Luciano Floridi's *The Philosophy of Information*, *MetaScience*, vol. 22, pp. 93-98. (DOI) 10.1007/s11016-012-9679-9.
- 4-29. 1968-79 26 miscellaneous short reviews for *Mathematical Reviews*.

Software

1. *FX-Loader* (1982) A "shareware" program to design fonts and download them into Epson FX series printers, together with a sample mathematics/logic symbol font.
2. *Star-Loader* (1984) A "shareware" program to design fonts and load them into a modified *Wordstar* so they display on screen (and print using *FX-Loader*), together with a sample mathematics/logic symbol font.

Research Talks—Omitted are numerous talks given as dean about the IU School of Informatics (Items marked with an asterisk are published, in full or in abstract, as part of the official publication of the meeting.)

1. "Homomorphisms of Intensionally Complemented Distributive Lattices" (with N. D. Belnap, Jr., delivered by Dunn), contributed paper, meeting of the Association for Symbolic Logic, New York, December, 1965.
2. "The Algebra of Entailment," Philosophy Department Colloquium, Wayne State University, January, 1966.
3. "The Effective Equivalence of Certain Propositions about de Morgan Lattices," contributed paper, meeting of the Association for Symbolic Logic, Houston, Texas, January, 1967.
4. "The Substitution Interpretation of Quantification," invited paper at the Second Annual Michigan State University Logic Colloquium, June, 1967
5. *"An Algebraic Completeness Proof for the First Degree Fragment of Entailment," contributed paper, Third International Congress for Logic, Methodology and Philosophy of Science, Amsterdam, August, 1967.
6. *"An Intuitive Semantics for First Degree Relevant Implications," contributed paper, meeting of the Association for Symbolic Logic, Chicago, May, 1967.
7. *"Representation Theory of Normal R-Mingle Matrices," contributed paper, meeting of the Association for Symbolic Logic, Boston, December, 1967.
8. "Entailment: A Survey," Philosophy Department colloquium, University of Massachusetts, October, 1968.
9. "Extensions of R-Mingle," Philosophy Department Mahlon Powell Lecture, November, 1968.
10. *"Entailment Logics and Material Implication" (with R. K. Meyer, delivered by him), meeting of The American Mathematical Society, Clemson, South Carolina, November, 1968.
11. "Comments on Philip Peterson's 'Concepts and Words'," commentator, American Philosophical Association (Eastern Division) Meeting, Washington, D. C., December, 1968.
12. *"Extensions of RM and LC," contributed paper, meeting of the Association for Symbolic Logic, New Orleans, Louisiana, January, 1969.
13. "Relevant Implication: Proof Theory and Model Theory" (two lectures), Mathematics Department Logic Colloquium, Yale University, February, 1969.

14. "A Gentzen System for Positive R," Philosophy Department Logic Seminar, University of Pittsburgh, March, 1969.
15. "Natural Language versus Formal Language," invited speaker (together with Frederic Fitch, Bas van Fraassen, and Richard Montague) in the joint symposium by that title of the Association for Symbolic Logic and the American Philosophical Association at their joint meeting, December, 1969.
16. *"A `Gentzen System' for Positive Relevant Implication," contributed paper (read by title only), meeting of the Association for Symbolic Logic, New York, December, 1969.
17. *"Comments on N. D. Belnap, Jr.'s `Conditional Assertion and Restricted Quantification'," invited speaker (together with Belnap and W. V. Quine) in symposium on Quantification and Generality, American Philosophical Association (Western Division) Meeting, St. Louis, Missouri, May, 1970.
18. *"A Truth-Value Semantics for Modal Logic," invited speaker, Temple University conference on Deviant Formal Semantics (co-sponsored by Association for Symbolic Logic), Philadelphia, Pennsylvania, December, 1970.
19. "A Kripke-Style Semantics for R-Mingle," contributed paper, Tarski Symposium, University of California, Berkeley, June, 1971.
20. "Comments on Fitch's `Toward Proving the Consistency of Principia Mathematica'," invited paper, Bertrand Russell Centenary Conference, Indiana University, March, 1972.
21. "Relevant Implication," Computer Science Department Colloquium, Indiana University, October, 1973.
22. *"Gentzen's Cut and Ackermann's Gamma," (with R. K. Meyer, invited paper delivered by Dunn) at First International Conference on Relevance Logics, St. Louis, Missouri, September 26-28, 1974.
23. *"A Natural Family of Sentential Calculi Intermediate Between R and R-Mingle," contributed paper, meeting of the Association for Symbolic Logic, Chicago, April, 1975.
24. "Gentzen's Cut and Ackermann's Gamma," Philosophy Department Staff Seminar, Auckland University, July, 1975.
25. "A Kripke-Style Semantics for R-Mingle," Mathematics and Philosophy Departments Colloquium, University of Wellington, Victoria, July, 1975.
26. "An Intuitive Semantics for First-Degree Entailments," Philosophy Department Seminar,

University of Wellington, Victoria, July, 1975.

27. "A Tableau System for First-Degree Relevant Implications," contributed paper, Australasian Association for Logic 1975 Mini Conference, Institute of Advanced Studies, The Australian National University, Canberra, August 22-24, 1975.
28. "A Completeness Result for First-Order RM," (two lectures) Logic Group Staff Seminar, The Australian National University, Canberra, February, 1976.
29. "An Intuitive Semantics for First-Degree Entailments," Philosophy Department Staff Seminar, University of Adelaide, April, 1976.
30. "A Kripke-Style Semantics for R-Mingle," Philosophy Department Staff Seminar, University of Queensland, May, 1976.
31. "An Intuitive Semantics for R-Mingle," Philosophy Department Staff Seminar, University of Sydney, June, 1976.
32. "A Theorem in 3-Valued Model Theory with Connections to Number Theory, Type Theory, and Relevant Logic," Logic Group Staff Seminar, The Australian National University, Canberra, June, 1976.
33. "An Intuitive Semantics for First Degree Entailments," Philosophy Department Staff Seminar, La Trobe University, October, 1976.
34. "A Truth-Value Semantics for Modal Logic," Philosophy Department Staff Seminar, University of Melbourne, October, 1976.
35. "Inconsistent Models, Ambiguous Information, and Relevant Logic," Philosophy Department Colloquium, Southern Illinois University, Edwardsville, November, 1976; Mathematics and Philosophy Departments Colloquium, Oberlin College, February, 1977.
36. *"A Theorem in 3-Valued Model Theory with Connections to Number Theory, Type Theory, and Relevant Logic, contributed paper, meeting of the Association for Symbolic Logic, Chicago, April, 1977.
37. "Inconsistent Models, Ambiguous Information, and Relevant Logic," contributed paper, meeting of The Society for Exact Philosophy, Victoria, B.C., May, 1977; University of Warwick, England, March, 1978; Philosophy Sub-Faculty Wednesday Night Discussion Group, University of Oxford, England, March, 1978.
38. "Some Proof-Theoretic Aspects of Relevance Logic," Logic Seminar, The Mathematical Institute, University of Oxford, England, April, 1978.
39. "The Paradoxes of Implication," Philosophy Department, University of Cambridge, England,

- May, 1978.
40. "Entailment and the Disjunctive Syllogism, invited paper, The Scots Philosophy Club Annual Meeting, St. Andrews, Scotland, May, 1978.
 41. "Inconsistent Models, Ambiguous Information, and Relevant Logic," Philosophy Club of the University of St. Andrews, May, 1978.
 42. "Relevance Logic," Mathematics Dept. Logic Seminar, Simon Fraser University, June, 1979.
 43. "Generalized Representation and Completeness Results," Philosophy Department Staff Seminar, University of Victoria (B.C.), June, 1979.
 44. *"Relevant Robinson's Arithmetic," invited paper at Conference on Practical and Philosophical Motivations of Non-Classical Logics (Sponsored by Polish Academy of Sciences, IUHPS, and Nicolas Copernicus University), Torun, Poland, August, 1979.
 45. *"Anderson-Belnap and Lewy on Entailment," invited paper at 6th International Congress for Logic, Methodology and Philosophy of Science, Hannover, BDR, August, 1979.
 46. *"Quantum Mathematics," invited speaker (with G. Hellman) in symposium on Quantum Logic and Mathematics, Biennial Meeting of The Philosophy of Science Association, Toronto, October, 1980.; Department of Philosophy, University of Illinois at Chicago Circle, November, 1980.
 47. "Relevance Logic and Entailment," invited presentation at Workshop on Philosophical Logic, Werner Reimers Stiftung, July 15-18, 1981.
 48. "Topics in Relevance Logic," invited Hour Lecture, meeting of the Association for Symbolic Logic, Philadelphia, December, 1981.
 49. "Mathematics Based on Quantum Logic," Mathematical Institute, Oxford, June, 1982.
 50. *"Relevant Predication," invited lecture, Australasian Association of Philosophy, Auckland, May, 1983.
 51. *"Extensionality in Non-Classical Logics," invited lecture, Australasian Association for Logic, Perth, May, 1983.
 52. Survey lecture in relevance logic, Philosophy Department, University of Western Australia (Perth), May, 1983.
 53. "Quantum Mathematics" and "Extensionality in Non-Classical Logics," Department of Philosophy, Institute for Advanced Study, The Australian National University Canberra, June, 1983.

54. "Relevant Predication," Department of Philosophy, The Faculties, The Australian National University, Canberra, June, 1983.
- 55-56. Two survey lectures on relevance logic, Philosophy Department Staff Seminars, University of Melbourne, June and July, 1983.
57. "Relevant Predication," Department of Traditional and Modern Philosophy, Sydney University, July, 1983.
58. "Relevance Logic with Reference to Category Theory," Department of Pure Mathematics, Sydney University, July, 1983.
59. "The Turing Test," Department of Philosophy, University of Queensland, July, 1983.
60. Survey lecture on relevance logic, and also "The Turing Test: Can Machines Think?" Philosophy Department, Flinders University, Adelaide, July 1983.
61. "Relevant Predication," Department of Philosophy, University of Adelaide, August, 1983.
62. Three survey lectures on quantum logic, La Trobe University (Melbourne), July, 1983.
63. "Quantum Mathematics," Department of History and Philosophy of Science, University of Melbourne, July, 1983.
64. "Predication in Relevance Logic," Department of Philosophy, Purdue University, Sept., 1983.
65. "Relevant Predication," contributed paper, Society for Exact Philosophy, Athens, Georgia, May, 1984.
66. "Hypothetical Platonism," invited paper, Working Conference on the Philosophy of Mathematics, Indiana University, October, 1984; Center for the Philosophy of Science, University of Pittsburgh, November, 1984.
67. "A Uniform Treatment of Implication and Negation through Residuation and Galois Connections," Joint Theory Seminar, Department of Computer Science, Carnegie-Mellon University, November, 1984.
68. "A Primer of Non-Classical Logics, with Applications to Various and Sundry of the Arts and Sciences," general university lecture sponsored by the Indiana University Institute for Advanced Study, November, 1984.
69. "Relevant Predication," Dept. of Philosophy, University of Massachusetts, March, 1985.
70. "A Primer of Non-Classical Logics, with Applications to Various and Sundry of the Arts and Sciences," Department of Philosophy, Amherst College, April, 1985.

71. "Relevant Predication," Department of Philosophy, Rutgers University, October, 1987.
72. "Intrinsic Properties and Internal Relations," Department of Philosophy, University of Massachusetts, March, 1988.
73. "The Relevance of Relevance Logic to Artificial Intelligence," invited paper, Society for Exact Philosophy meeting, University of Rochester, June, 1988.
74. "Intrinsic Properties and Internal Relations," Department of Philosophy, La Trobe University, Melbourne, July, 1988.
75. "Intrinsic Properties and Internal Relations," Department of Philosophy, University of Adelaide, August, 1988.
76. "Relevant Predication and the Frame Problem," The Automated Reasoning Project, The Australian National University, Canberra, August, 1988.
77. "The Relevance of Relevance Logic to Artificial Intelligence," Automated Reasoning Project, The Australian National University, August, 1988.
78. "Intrinsic Properties and Internal Relations," Department of Philosophy, University of Sydney, August, 1988.
79. "Relevance Logic," invited paper at Ohio State University Interdisciplinary conference on Axiomatic Systems (organized by Harvey Friedman), December, 1988.
80. "Relevant Predication 2: Intrinsic Properties and Internal Relations," invited paper, Society for Exact Philosophy, University of Alberta, August, 1989.
81. "Relevant Predication," invited paper, Conference on the Development of the Concept of Predication, University of California Institute for Research in the Humanities, Aug. 1989.
82. "Relevant Predication and Essential Predication," Presidential Address, Society for Exact Philosophy, Florida State University, June 1990.
83. "Gaggle Theory: An Abstraction of Galois Connections and Residuation, with Applications to Negation and Various Logical Operators," Indiana University Logic Seminar, Sept., 1990.
84. *"Gaggle Theory: An Abstraction of Galois Connections and Residuation, with Applications to Negation and Various Logical Operators," invited paper, JELIA (The European Workshop on Logics in Artificial Intelligence), Amsterdam, October, 1990.
85. *"Partial Gaggles Applied to Substructural Logics," invited paper, Conference on Substructural Logics, University of Tuebingen, November, 1990.

86. "A Primer on Gaggles," Indiana University Logic Seminar, March, 1992.
87. *"A Kripke Semantics for Linear Logic," joint work presented by Gerard Allwein, contributed paper, meeting of the Association of Symbolic Logic, Duke Univ., April, 1992.
88. "A Primer on Gaggles," Logic Playschool, Univ. of Victoria, July 1992.
89. "A Representation of Relation Algebras Using Routley-Meyer Frames," contributed paper, meeting of the Australasian Association for Logic, Canberra, July, 1992.
90. "Gaggle Theory," Logic Seminar, University of Wisconsin Mathematics Dept., March 1993.
91. "Gaggle Theory," Interdisciplinary Logic Seminar, The Graduate Center, CUNY, April, 1993.
92. "Predication and Relevance," Distinguished Philosophers Series, Manhattanville College, April, 1993.
93. "Gaggle Theory and a Ternary Semantics for Intuitionistic Logic," invited paper, Frege-Kolloquium 1993, Jena, Germany, September, 1993.
94. "Gaggle Theory," University of Leipzig, Department of Logic and Theory of Science, September, 1993.
95. *"A Logical Framework for Natural Properties," University of Pittsburgh Center for Philosophy of Science, October, 1993.
96. "A Logical Framework for Natural Properties," University of Montreal Philosophy Department, April, 1994.
97. "A Representation of Lattices in the Context of Generalized Galois Logics," University of Montreal Department of Mathematics, April, 1994.
98. "A Logical Framework for Natural Properties," Univ. of Wisconsin Philosophy Department, April, 1994.
99. "A Survey of Relevance Logic," Academia Sinica, Taipei, Taiwan, May, 1994.
100. "Relevant Predication," Institute of Philosophy, National Cheung Cheng University, Taiwan, May, 1994.
101. "A Logical Framework for Natural Properties," Philosophy Dept., Hong Kong University, June, 1994.

102. "A Comparative Study of Various Semantical Treatments of Negation," invited paper, Gesellschaft für Analytische Philosophie, Leipzig, September, 1994.
103. "Negation in Non-classical Logics," Oberlin College Departments of Computer Science and Philosophy, October, 1994.
104. "Relevant Prediction and Natural Properties," Philosophy Department, University of Texas (Austin), May, 1995.
105. *"Gaggle Theory and Multiple-Valued Logic," invited address, IEEE 25th International Symposium on Multiple-Valued Logic, Indiana University, Bloomington, May, 1995.
106. "Relevance Logic as a Partial, Epistemic and Dynamic Logic," invited keynote address, Workshop on Epistemic Logic, Partial Logic, Dynamic Logic, Univ. of Montreal, June, 1995.
107. "Logic Freed of Structural Assumptions," Indiana University Logic Seminar, March, 1996.
108. "Non-classical Logics," address to Indiana University's Phi Beta Kappa Chapter, April, 1996.
109. *"Proof Theory and Semantics for Structurally Free Logics," 3rd Workshop on Logic, Language, Information, and Computation (WoLLIC 96), Salvador, Brazil, May 1996.
110. "Gaggle Theory and Substructural Logics," Department of Logic, Faculty of Philosophy, Moscow State University, June 1996.
111. "Structurally Free Logic," Center for Logic, Russian Academy of Sciences, Moscow, June, 1996.
112. "Some Partial Logics and their Duals," student organized workshop in philosophical logic titled "Partial Logics and Strange Objects," the Claremont Graduate Center. Other participants were Kit Fine (NYU) and Peter Woodruff (UC-Irvine), April 10-11, 1997.
113. "Is Existence a (Relevant) Predicate?," Annual Meeting of the Society for Exact Philosophy, University of Toronto, May 15-18, 1997.
114. *"Partiality and its Dual," First World Congress on Paraconsistency, Ghent, Belgium, July 29-August 2, 1997.
115. "Partiality and its Dual," Group Seminar, March, 1998.
116. "Gaggles." Relaxed Logic Conference, University of Victoria (Canada), September, 1998.
117. "Structurally Free Logics," invited talk, Logic Seminar at CUNY Graduate Center, Oct., 1998.
118. *"The Role of Information in the Development of Non-classical Logics," invited paper, Conference on "Sources and outlines of non-classical approaches in the transition from traditional to modern logic," University of Bremen, Germany, March 19, 1999.

119. "The Duality of Programs and Data," invited presentation at Logic Workshop, Department of Philosophy, National Chung Cheng University, Taiwan, June 4, 1999.
120. "When is a Logic 'Partially Algebraizable'?", invited paper, Seventh Asian Logic Conference, Hsi-Tou, Taiwan, June 8, 1999
121. *"'Ternary Relational Semantics and Beyond: Programs as Data and Programs as Instructions," invited paper, Third Smirnov Readings, Institute of Logic, Russian Academy of Sciences, Moscow, May 25, 2001.
122. "Tonoids," Argonne Workshop on Automated Reasoning and Deduction, Argonne National Laboratory, July 13, 2001.
123. "A Brief History of the Concept of Information," invited lecture, NASSLLI (North American Summer School in Logic, Language and Information), Indiana University, June 19, 2003.
124. "Computation and Information: Two Sides of the Same Coin," ISE '03 (Information Systems and Engineering), Montreal, July 22, 2003.
125. "A Brief (Biased) History of the Concept of Information," invited lecture to the Polish Association for Logic and Philosophy of Science, and the Poland-Japan Institute for Information Technology, Warsaw, Poland, Oct. 14, 2003.
126. "The Duality Between Computation and Information," invited lecture, Trends in Logic conference celebrating the 50th anniversary of the journal *Studia Logica*, Warsaw, Poland, October 15, 2003.
127. "Informatics: Plato's Revenge?," invited Annual Herman B. Wells Lecture to the Society for Advanced Study, Indiana University, October 10, 2003.
128. "Quantum Logic / Quantum Computing = Classical Logic / Classical Computing," invited Lecture, Logica 2004, Hejnice Monastery, Czech Republic, June 24, 2004.
129. "Negation as an Explicit and Implicit Duality," Workshop on Negation in Constructive Logic, TU Dresden, June? 2004.
130. "Information in Computer Science," invited presenter, Workshop for the *Handbook on the Philosophy of Information*, sponsored by the Dutch Royal Academy of Science and Elsevier, Amsterdam, March 9, 2004.
131. *"'Steps towards a Symmetric Gaggles Theory," invited lecture, First World Congress on Universal Logic, Montreux, Switzerland, April 1, 2005.

132. "Białnycki-Birula and Rasiowa's Representation of Quasi-Boolean Algebras (De Morgan lattices) Revisited, with Consideration of Equivalences and Generalizations," *Studia Logica* Conference: Trends in Logic III, in memoriam A. Mostowski, H. Rasiowa, C. Rauszer, and Ruciane-Nida, Warsaw, Poland, September 24, 2005.
133. "History of the Representations of De Morgan Lattices," invited lecture, IX Congreso Dr. Antonio Monteiro, Bahia Blanca, Argentina, May 31, 2007.
134. "Symmetric Gaggles," Shanks Workshop on Proof Theory and Algebra, Department of Mathematics, Vanderbilt University, March 6, 2008
135. "Logic, Information, Computation," invited lecture, 2nd Annual GlaxoSmithKline Lecture on Semantics and Ontology, North Carolina State, April 17, 2008.
136. "The Four Valued Logic," Invited Lecture, Workshop on Truth Values, Dresden, May 31, 2008.
137. "Symmetric Gaggles," Indiana University Logic Seminar, September 10, 2008.
138. "Embedding the Four Valued Logic in a Context of Probability," Technical University of Ghent, December 9, 2008.
139. *"Quantum Logic and Quantum Computation," invited lecture, *Studia Logica* International Conference: Trends in Logic VI: Logic and the foundations of physics: space, time and quanta, Brussels. Dec. 12, 2008,
140. "Canonicity in Symmetric Generalized Galois Logics," contributed talk, Winter Meeting of the Association for Symbolic Logic, Washington, D.C., Jan. 7-8. – presented by co-author Katalin Bimbó.
141. "Contradictory Information: Too Much of a Good Thing," invited lecture, Logics of Consequence: A Celebration of Nuel Belnap's Work in Philosophical Logic, Pittsburgh PA, April 6, 2009.
142. "Reasoning in the Context of Contradictory Beliefs," Indiana University Logic Seminar, April 8, 2009.
143. "Quantum Logic and Quantum Computation," Indiana University Logic Seminar, November 18, 2009.
144. "Contradictory Information: Too Much of a Good Thing," invited lecture, School of Informatics, University of Northern Kentucky, November 23, 2009.
145. *"Smullyan's Analytic Tableaux Applied to Probabilistic Entailment in Jøsang's Subjective Logic (and Related Systems)," invited lecture for This Conference Needs No Title: A 90th

Birthday Celebration Honoring Raymond Smullyan, CUNY Graduate Center, December 17-18, 2009.

146. "Reasoning under Conditions of Contradictory Information," invited lecture, School of Informatics and Department of Philosophy, Univ.of Nevada at Las Vegas, April 10, 2010.
147. "Contradictory Information: Too Much of a Good Thing," invited lecture, Department of Philosophy, University of Alberta, November 6, 2010.
148. *"From Relevant Implication to Ticket Entailment," contributed talk, North American Meeting, Association of Symbolic Logic, Berkeley CA, March 11, 2011 – presented by co-author Katalin Bimbó.
149. "Did Jónsson and Tarski (1951-52) Anticipate Routley (Sylvan) and Meyer (1972-73)? The Answer is Yes and No," invited lecture, Beyond the Possible: Remembering Richard Sylvan, University of Melbourne, July 29, 2011.
150. "Contradictory Information: Better than Nothing," Workshop on the Philosophy of Information, Info-Metrics Institute, American University, October 3, 2011
151. *"Reasoning with Contradictory and/or Incomplete Information," XVI International Congress of Philosophy, Philosophical Association of Mexico. Toluca, Mexico, October 28, 2011.
152. "The Decision Problem of T_{\rightarrow} ," 2011-2012 North American Winter Meeting of the Association for Symbolic Logic, Berkeley, CA, January 6-7, 2011 – presented by co-author Katalin Bimbó.
153. "Contradictory Information – Better Than Nothing," Workshop on Non-classical Epistemic Logics, Dept. of Logic, Institute of Philosophy, ASCR, Prague, and Dept. of Logic, Faculty of Arts, Charles University, Prague, June 14, 2012.
152. *"Contradictory Information Can Be Better Than Nothing: The Example of the Two Firemen," Logica 2012, Hejnice Monastery, Czech Republic, June 20, 2012.
155. "Arrow Logic, Relevance Logic, and Relation Algebras," Computational Logic: A 70th Birthday Celebration Honoring Mel Fitting, October 5, 2012, Graduate Center, City University of New York.
156. "Arrow Logic, Relevance Logic, and Relation Algebras," Logic: Between Semantics and Proof Theory, A Workshop in Honor of Prof. Arnon Avron's 60th Birthday, 2 November 2012, Tel-Aviv, Israel.
157. "The Third Place is the Charm: Ternary Accessibility Relations," invited keynote address, Relevant Logic Workshop, UniLog 2013, Rio de Janeiro, April 6, 2013.
158. "Arrows Pointing at Arrows: Arrow Logic, Relevance Logic, and Relation Algebras," IU Logic Seminar, April 17, 2013.

159. "Contradictory Information Can Be Better than Nothing: The Example of the Two Firemen," Workshop on the Philosophy of Information: The Value of Information, Info-Metrics Institute, American University, April 26, 2013.
160. "Inhabitants of T^t -> Theorems," 2013 Annual Meeting of the Association for Symbolic Logic, Waterloo, Ontario, May 8-11, 2013 – presented by co-author Katalin Bimbó.
161. *"The Genesis and Evolution of the Ternary Relational Semantics for Relevance Logic," invited lecture, Logica 2013, Hejnice Monastery, Czech Republic, June 20, 2013.
162. "Arrows, Channels, Relevance, and Relations," Prague Workshop on Non-classical Epistemic Logics," Institute of Philosophy of the Academy of Sciences of the Czech Republic, June 22, 2013.
163. "Arrows, Relevance, and Relations," invited lecture, University of Munich Center for Mathematical Philosophy, June 25, 2013.
164. "Contradictory Information Can Be Better than Nothing: The Paradox of the Two Firemen," invited lecture, University of Munich Center for Mathematical Philosophy, June 27, 2013.
165. "Logic, Information, Computation," Special Seminar, Info-metrics Institute, American University, Oct. 9, 2013.
166. "The Genesis and Evolution of the Ternary Relational Semantics for Relevance Logic," IU Logic Seminar, March 5, 2014.
167. "Contradictory Information: Better than Nothing," Department of Philosophy Colloquium, Carnegie Mellon University, April 10, 2014.
168. "The Paradox of the Two Firemen," Modal Logic Workshop: Consistency and Structure, Center for Formal Epistemology, Carnegie Mellon University, April 12, 2014.
169. *"The Relevance of Relevance to Relevance Logic," invited lecture, 6th Indian Conference on Logic and its Applications, ICLA 2015, Mumbai, India, January 8-10, 2014.
170. "Combinatory Inhabitants of R -> Theorems Extracted from Sequent Calculus Proofs," 2013–2014 Winter Meeting of the Association for Symbolic Logic, Baltimore, MD, January 17–18, 2014.
171. "Contradictory Information: Too Much of a Good Thing," invited lecture, School of Cognitive Science, Jadavpur University, Kolkata, India, January 12, 2015.
172. "Contradictory Information Can Be Better than Nothing: The Paradox of the Two Firemen," invited lecture, School of Cognitive Science, Jadavpur University, Kolkata, India, January 13, 2015.

173. "Quantum Logic," invited lecture, Department of Mathematics, Kanpur IIT, Kanpur, India, January 15, 2015.
174. "On the Decidability of Classical Linear Logic," 2015 North American Annual Meeting of the Association for Symbolic Logic, Champagne-Urbana, March 25-28, 2015– presented by co-author Katalin Bimbó.
175. "Relevance Logic as an Information-Based Logic," Info-Metrics Institute 2015 Spring Workshop on Philosophy of Information and Information Processing, Pembroke College, University of Oxford, March 27, 2015.
176. *"Various Interpretations of the Ternary Accessibility Relation," invited keynote address, Smirnov Readings, Moscow State University, June 17, 2015.
177. "Relevance Logic Analyzed via Pragmatics (from Linguistics) and Information/Computation," added invited lecture, Workshop on Language, Logic, Information, and Computation (WoLLIC2015), Indiana University Bloomington, August 23, 2015.
178. "The Relevance of Relevance to Relevance Logic," invited lecture, Department of Philosophy, University of Alberta, September 29, 2015.
179. "The Value of Contradictory Information: the Paradox of the Two Firemen, Logic Group, invited lecture, University of Alberta, September 30, 2015.
178. "The Third Place is the Charm: Ternary Accessibility Relations," invited keynote address, Third Workshop, Department of Philosophy, University of Alberta, May 2016. 16,
179. *"Informational Interpretations of the Ternary Accessibility Relation," Logica 2016, Institute of Philosophy, Czech Academy of Sciences, Hejnice Monastery, Czech Republic, June 22, 2016.

Service

Departmental Service

Philosophy Undergraduate Advisor (1970-72)

Philosophy Director of Graduate Studies (1972-74)

Philosophy Recording Secretary (1976-77)

Philosophy Department Chair (1980-84, 1994- 97)

Philosophy Computer Officer (1985-89)

Editor of Philosophy Alumni Newsletter (1985)

Director, Interdisciplinary Logic Colloquium (1985-88)

Chair, Joint Philosophy-Computer Science Committee to Establish Interdepartmental Major (1987-88) between Computer Science and Philosophy

Computer Science Curriculum Committee (1988-91)

Chair of Tenure Committee (Computer Science) (1996)

Chair, Computer Science Governance Committee (1996-)

Convener, Computer Science Chair Selection Committee (1996)

Search Committee, Computer Science, 1999-2000

Various lengths of time (often as Chair) on Philosophy Department Curriculum, Admissions, Budget, Hiring, Tenure, and Promotion Committees, Office Oversight Committee, Graduate Student Evaluation Committee, Computer Committee, By-laws Committee, Logic Qualifying Committee, Building/Facilities Committee

University Service

Campus Calendar Committee (1971-1975)

Indiana University Press Advisory Committee (1980-83)

Advisory Committee of Indiana University Center for the Teaching of Philosophy (1980-1981)

Review Committee, Forensic Studies Department (1981-1982)

Research and Graduate Development Advisory Panel (1981-1982)

Great Issues Conference Steering Committee (1982-1984)

Semiotics Program Undergraduate Committee (1981-1984)

Applied Ethics Committee (1981-1982)

Campus Computer Literacy Committee (1983-85)

College of Arts and Sciences Salary Criteria Advisory Committee (1985-1986)

Academic Computing Policy Committee (1982-1988); Campus Computer Use Committee (1985-1988); Chair, Word-Processing and Computing in the Humanities Subcommittee (1985-1986); Chair, Word-Processing Subcommittee (1986-1987); member, Research Subcommittee (1985-1986), Artificial Intelligence Subcommittee (1985-1987), Executive Committee (1987-1988); Bloomington Faculty Council Liaison (1986-1988)

Bloomington Academic Computing Wrubel Lectures Committee (1985-87)

Graduate School Membership Committee (1985-1986)

Bloomington Campus Faculty Council (1986-1988)

College of Arts and Sciences Policy Committee (1986-1988)

Research and Graduate Development Equipment Policy Committee (1986-1988)

Campus Budgetary Affairs Committee (1986-1988); co-chair (1987-1988)

Search Committee for Dean of Academic Computing (1987)

Steering Committee, Program in Cognitive Science (1988-98)

University Budgetary Affairs Committee, co-Chair (1987-1988)

University Budget Committee (1987-1988)

University Responsibility Center Advisory Group (1987-1988) (a "task force" to implement a new budget system for the University)

College Salary Review Committee (convener) (1988-93)

College Liaison with Affirmative Action and University Computing (1988-93)

Campus Committee to Establish Responsibility Center Management Algorithm for Computing Charges (1988-89)

College of Arts and Sciences Salary Review Committee, Chair (1988-93)

Committee to Determine Specifications for Driving Fiber-Optic Backbone (1988-89)

Campus Committee to Establish Responsibility Center Management Algorithm for Space Charges (1989-90)

College Planning Committee, chair (1988-91)

University Policy Committee on Access to Institutional Data (1989-90)

University Steering Committee on Responsibility Center Management Information Needs (1989-91)

University Planning Committee for Administrative Computing (1988-89)

Search Committee, Center for Excellence Laboratory Director (1989-90)

Student Records Policy Committee (1989-93)

University Task Force on Fee Structure (1989-90)

Audio-Visual Task Force (1990-91)

Campus Bookstore Committee (1990-92)

College Promotions Committee, chair (1990-93)

Telecommunications Committee (1987-93)

University Computing Services Dean's Advisory Committee (1991-93)

Instructional Television Advisory Committee (1991-93)

College Technology Committee, convener (1991-93)

College Priorities Committee, chair (1992-93)

Committee to Determine Extensions of Fiber-Optic Backbone (1992)

Association of Titled Professors, Steering Committee (1993-96), Bloomington chair (1996-99)

Task Force to Review Arts and Sciences Graduate Programs (1995)

Indiana University, Strategic Directions Task force for Campus and University Missions (1994- 98)

Strategic Directions Council (1995-98)

Strategic Directions Review Panel III, (Accountability/Best Practices) (1993)

Campus Committee for Review of Responsibility Centered Management (Campus Budgeting System) (1995-96)

Dean of Faculties GradPact Committee (1996)

RUGS Panel for graduate students on external graduate fellowship opportunities (1996)

I.U. President's Informal Faculty Advisory Group (1996- 99)

Search Committee for Dean of the School of Music (1996-97)

Review Committee for Bloomington Chancellor (1997)

University Information Technology Committee: chair (1997-1999), member (1999-2002)

Committee on Scholarly Communication (1997-2000)

Search Committee for Indiana University Vice-President for Academic Affairs and Chancellor of the Bloomington Campus (2000-2001)

Pervasive Technology Laboratories (formerly IPCRES), Board (1999-2007)

Pervasive Technology Laboratories (formerly IPCRES) Distinguished Scientist Search Committee (2000-2002)

Search Committee for Director of Bioinformatics for Indiana University Medical School (2001-2003)

Advisory Board, Indiana University Press (2001-2004)

Deans' Advisory Committee to the Vice-Chancellor for Budgetary Administration and Planning (2003-2007)

Wells Scholar evaluator (2002)

Indiana University HBCU Initiative Advisory Committee and Senior Stakeholders' Forum (2006-2007)

School of Informatics and Computing Colloquium Committee, Chair (2007-2011)

Professional Service

Editorial Board, *Noûs* (1967-)

Staff Reviewer for *Mathematical Reviews* (1970-1985)

Chair of session on deontic logic at American Philosophical Association Western Division Meeting (May, 1973)

Session chair at University of Cincinnati Philosophy Colloquium on Philosophy and Linguistics (October, 1974)

Program Committee of 1975 American Philosophical Association Western Division Meeting

Program Chair of Fifth International Symposium on Multiple-Valued Logic (1975)

Various editorial and advisory boards of *Studia Logica* including its first International Editorial Board (1976-)

Executive Committee of Association for Symbolic Logic (1978-1981); Council, Association for Symbolic Logic (1978-1986)

Alternate Delegate of the National Academy of Sciences to International Congress of Logic, Methodology and Philosophy of Science, Hannover (1979)

Nominating Committee of Society for Exact Philosophy (1980)

Representative of the Association for Symbolic Logic to the American Association for Advancement of Science, HPS Section (1981-1982)

Membership Committee, Association for Symbolic Logic (1981-1982)

Editor, *Journal of Symbolic Logic* (1982-1988)

Treasurer, Society for Exact Philosophy (1982-1984)

Editorial Board, *Journal of Non-Classical Logic*, 1983- ?)

Region 4 Selection Committee, Mellon Fellowships in the Humanities (1983-1987)

External Committee to Evaluate Creation of a Department of Philosophy at Carnegie Mellon University (1983)

External Reviewer for Department of Philosophy, University of Iowa (1984-1985)

Member, American Philosophical Association Subcommittee on Research and Publications (1985-1988)

Member, Association for Symbolic Logic Committee on Publications (Subcommittee: New Journal) (1985-88)

Program Co-chair, Association for Symbolic Logic Meeting (April, 1986)

Vice-President, Society for Exact Philosophy (1986-1988)

Coordinating Editor, *Journal of Philosophical Logic* (1987-1996)

External Reviewer for School of Humanities, University of California at Irvine (1987)

President, Society for Exact Philosophy (1988-1990)

Guest Editor (with J. Franco and W. Wheeler) of special issue of *Mathematics and Artificial Intelligence* devoted to logic, combinatorics, and computer science, vol. 6, nos. 1-3, 1992.

Editorial Committee, *Logic and Logical Philosophy* (1993-)

Advisory Board, *Taiwanese Journal for Philosophy and the History of Science* (1993-95)

Program Committee for TARK 1994 (Conference on Theoretical Aspects of Reasoning about Knowledge, Sponsored by IBM)

Session Chair, American Philosophical Association Central Division Meeting, Chicago, May, 1996

Organizing Committee for First International Congress on Paraconsistency, 1996-97

Organizing Committee for WoLLIC 98 (Workshop on Logic, Language, Information, Computation)

Distinguished Board of Advisors, *e-Service Journal* (2000-)

North American Collecting Editor, *Bulletin of the Section of Logic of the Polish Academy of Sciences*, (1998-)

Scientific Committee for the Third World Congress on Paraconsistency, 2002-03

Program Committee for FOL75 (75 Years of First Order Logic), Humboldt University, 2002

Consultant to the President, University of Nevada at Las Vegas, on the School of Computer Science, 2002

Editorial board of *Annals of Mathematics, Computing, and Teleinformatics*, published by the Technological Education Institute of Larissa, Greece (2002- ?)

Visiting Committee, Philosophy Department, Carnegie Mellon University, 2003

Program Committee, The Fourth International Conference Smirnov Readings, Moscow, Institute of Philosophy of Russian Academy of Sciences, 28-30 May 2003.

Program Committee, FOL75 (commemorating the 75th^h anniversary of the publication of Hilbert and Ackerman's publication of *Grundzüge der Theoretischen Logik* (the starting point many say of modern mathematical logic), Humboldt University, Sept. 19-21, 2003

External Review Committee, College of Computing Science, New Jersey Institute of Technology, 2004

External Review of B.A. Degree Proposal, School of Informatics, University at Buffalo, SUNY, 2004

Vice-chair, IT Deans Group, Computing Research Association (2004-06)

Steering Committee, Academic Alliance, Center for Women and IT (2004-07)

External Review of Proposal to create a School of Informatics at UNLV, 2005

Review committee for IT at Rutgers University, 2005.

Member of the Academic Council of the University of Dubai for their College of Information Technology (2005-)

Chair, Iota Phi Nu, National Informatics Honorary Society, (2005-07)

Invited Presenter at NSF Northeast Workshop on Integrative Computing Education and Research, Boston, 2005

External Advisory Board, ASPIRE (Advancing Spelman's Participation in Informatics Research and Education), Spelman College (2006-2008)

Editorial board of *Logica Universalis* (2007-)

Program Committee for 2008 Snowbird Conference, biennial conference of the Computing Research Association (2007-08)

Consultant to the Dean of the College of Liberal Arts, 2007-08, regarding the Philosophy Department, University of Minnesota (2007-08)

Organizer (with Lawrence Moss and Zhenghan Wang) of workshop on Quantum Logic Inspired by Quantum Computing, Indiana University, May 2009.

Industrial Advisory Committee, Dept. of Computer Science, University of Cincinnati (2009-2013)
External Reviewer for Information Technology Tasks, Naval Research Laboratory (NRL), July 2010.

Affiliate Faculty and Advisory Board member, Info-Metrics Institute, American University (2011-)

External Reviewer for University of Texas at Austin Philosophy Department (March 2013)

Program Committee for Logica conferences 2014, 2015, 2016.

Advisory Board, *Review of Philosophical Logic* (2014-)

Referee for various journals including *Journal of Symbolic Logic*; *Journal of Philosophical Logic*; *Nous*; *Philosophical Review*; *Philosophical Research Archive*, *Philosophical Studies*; *Archives of Mathematical Logic*; *Synthese*; *Journal of Logic, Language, Information*; *Studia Logica*; *Logic Journal of the IGPL*. Referee for various foundations and agencies including Guggenheim, ACLS, NSF, NEH, similar agencies in other countries including Canada, Australia, and Germany. Referee for various conferences and tenure and promotion cases.

Public/Community Service

Old Northeast Neighborhood Association: Vice-President (1988-90), President (1990-96), Vice-President (1996-99), Board of Directors (1999-2001)

City of Bloomington Master Plan, neighborhood representative (1990-91)

Bloomington Restorations Inc.: Board of Directors (1994-98)

Taskforce to Save the Indiana Theater, member (1997-98)

Mayor's Taskforce on Leaf Pickups, member (1997-98)

City of Bloomington Neighborhood Development Commission, Chair (1997-1999)

Inside Indiana with Gerry Dick (Public TV program on business and IT), Advisory Board (2000-2003)

CareersINSite (Lilly Endowment funded initiative to increase college student awareness of technology job opportunities in the state of Indiana), Board (2000-03)

Economic Vision 2010 Task Force (Subcommittee on Information Technology and Advanced Manufacturing), Indiana Chamber of Commerce (2001-2003)

Life Science Strategic Plan Task Force, Indiana Health Industry Forum, (2006-2007)

Board of Directors, HealthLINC (South Central Indiana Health Information Exchange) (2009-), President 2010-2013)

