

References

1. Allwein, G., & MacCaull, W. (2001). A Kripke semantics for the logic of Gelfand quantales. *Studia Logica*, 68, 173–228.
2. Almkudad, A., & Nelson, D. (1984). Constructible falsity and inexact predicates. *Journal of Symbolic Logic*, 49, 231–233.
3. Anderson, A. R., & Belnap, N. D. (1975). *Entailment: The logic of relevance and necessity* (Vol. I). Princeton, NJ: Princeton University Press.
4. Anderson, A. R., Belnap, N. D., & Dunn, J. M. (1992). *Entailment: The logic of relevance and necessity* (Vol. II). Princeton, NJ: Princeton University Press.
5. Anderson, D., & Zalta, E. (2004). Frege, Boolos, and logical objects. *Journal of Philosophical Logic*, 33, 1–26.
6. Arieli, O., & Avron, A. (1994). Logical bilattices and inconsistent data. In *Proceedings 9th IEEE annual symposium on logic in computer science* (pp. 468–476). IEEE Press.
7. Arieli, O., & Avron, A. (1996). Reasoning with logical bilattices. *Journal of Logic, Language and Information*, 5, 25–63.
8. Arieli, O., & Avron, A. (2000). Bilattices and paraconsistency. In D. Batens et al. (Eds.), *Frontiers of paraconsistent logic* (pp. 11–27). Baldock Hertfordshire: Research Studies Press.
9. Avigad, J., & Zach, R. (2008). The epsilon calculus. *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition). Edward N. Zalta (Ed.). <http://plato.stanford.edu/archives/fall2008/entries/epsilon-calculus/>
10. Avron, A. (1996). The structure of interlaced bilattices. *Mathematical Structures in Computer Science*, 6, 287–299.
11. Avron, A. (1999). On the expressive power of three-valued and four-valued languages. *Journal of Logic and Computation*, 9, 977–994.
12. Avron, A. (2009). Multi-valued semantics: why and how. *Studia Logica*, 92, 163–182.
13. Avron, A., & Lev, I. (2005). Non-deterministic multi-valued structures. *Journal of Logic and Computation*, 15, 241–261.
14. Avron, A., & Zamansky, A. (2009). Non-deterministic semantics for logical systems - A survey. In D. Gabbay, & F. Guenther (Eds.), *Handbook of philosophical logic*. Berlin: Springer-Verlag.
15. Baker, K. A. (1977). Finite equational bases for finite algebras in a congruence-distributive equational class. *Advances in Mathematics*, 24, 207–243.
16. Baaz, M., Fermüller, C., & Zach, R. (1994). Elimination of cuts in first-order many-valued logics. *Journal of Information Processing and Cybernetics*, 29, 333–355.
17. Baaz, M., Fermüller, C., Salzer, G., & Zach, R. (1998). Labeled calculi and finite-valued logics. *Studia Logica*, 61, 7–33.

18. Barwise, J., & Perry, J. (1981). Semantic innocence and uncompromising situations. *Midwest Studies in the Philosophy of Language*, VI, 387–403.
19. Barwise, J., & Perry, J. (1983). *Situations and attitudes*. Cambridge, MA: MIT Press.
20. Batyrshin, I., & Kaynak, O. (1999). Parametric classes of generalized conjunction and disjunction operations for fuzzy modeling. *IEEE Transactions on Fuzzy Systems*, 7, 586–596.
21. Beaney, M. (Eds. and transl.) (1997). *The Frege reader*. Oxford: Wiley.
22. Belnap, N. D. (1977). How a computer should think. In G. Ryle (Ed.), *Contemporary aspects of philosophy* (pp. 30–55). Stocksfield: Oriell Press Ltd.
23. Belnap, N. D. (1977). A useful four-valued logic. In J. M. Dunn, & G. Epstein (Eds.), *Modern uses of multiple-valued logic* (pp. 8–37). Dordrecht: D. Reidel Publishing Co.
24. Belnap, N. D. (2009). Truth values, neither-true-nor-false, and supervaluations. *Studia Logica*, 91, 305–334.
25. Belnap, N. D. (2010). How case-intensional semantics prevents the slingshot from hitting its target (Unpublished Manuscript) (22 pp.).
26. van Benthem, J. (1984). Possible worlds semantics: a research program that cannot fail? *Studia Logica*, 43, 379–393.
27. van Benthem, J. (1997). Modal foundations of predicate logic. *Logic Journal of the IGPL*, 5, 259–286.
28. Béziau, J.-Y. (1994). Universal logic. In T. Childers, & O. Majer (Eds.), *Proceedings Logica' 94* (pp. 73–93) Prague: Czech Academy of Sciences.
29. Béziau, J.-Y. (1997). What is many-valued logic? In *Proceedings of the 27th international symposium on multiple-valued logic* (pp. 117–121). Los Alamitos CA: IEEE Computer Society Press.
30. Béziau, J.-Y. (1998). Recherches sur la logique abstraite: les logiques normales. *Acta Universitatis Wratislaviensis no. 2023, Logika*, 18, 105–114.
31. Béziau, J.-Y. (2006). Many-valued and Kripke semantics. In J. van Benthem et al. (Eds.), *The age of alternative logics* (pp. 89–101). Dordrecht: Springer-Verlag.
32. Bialynicki-Birula, A., & Rasiowa, H. (1957). On the representation of quasiboolean algebras. *Bulletin de l'Académie Polonaise des Sciences*, 5, 259–261.
33. Biedermann, K. (1999). An equational theory for trilattices. *Algebra Universalis*, 42, 253–268.
34. Birkhoff, G. (1967). *Lattice theory*. Rhode Island: Providence.
35. Blackburn, P., de Rijke, M., & Venema, Y. (2001). *Modal logic*. Cambridge University Press.
36. Blamey, S., & Humberstone, L. (1991). A perspective on modal sequent logic. *Publications of the Research Institute for Mathematical Sciences, Kyoto University*, 27, 763–782.
37. Bloom, S., & Suszko, R. (1972). Investigations into the sentential calculus with identity. *Notre Dame Journal of Formal Logic*, 13, 289–308.
38. Bochman, A. (1998). Biconsequence relations: A four-valued formalism of reasoning with inconsistency and incompleteness. *Notre Dame Journal of Formal Logic*, 39, 47–73.
39. Brown, B., & Schotch, P. (1999). Logic and aggregation. *Journal of Philosophical Logic*, 28, 265–287.
40. Burge, T. (1986). Frege on truth. In L. Haaparanta, & J. Hintikka (Eds.), *Frege synthesized* (pp. 97–154). Dordrecht: D. Reidel Publishing Co.
41. Burge, T. (1992). Frege on knowing the third realm. *Mind*, 101, 633–650.
42. Bush, W. T. (1908). Provisional and eternal truth. *The Journal of Philosophy, Psychology and Scientific Methods*, 5, 181–184.
43. Caleiro, C., Carnielli, W., Coniglio, M., & Marcos, J. (2005). Two's company: “The humbug of many logical values”. In J.-Y. Béziau (Ed.), *Logica universalis* (pp. 169–189). Basel: Birkhäuser Verlag.
44. Caleiro, C., Carnielli, W., Coniglio, M., & Marcos, J. (2007). *Suszko's Thesis and dyadic semantics*. Preprint, <http://www.cs.math.ist.utl.pt/ftp/pub/CaleiroC/03-CCCM-dyadic1.pdf>.

45. Caleiro, C., Carnielli, W., Coniglio, M., & Marcos, J. (2007). *Dyadic semantics for many-valued logics*. Preprint, <http://www.cs.math.ist.utl.pt/ftp/pub/CaleiroC/03-CCCM-dyadic1.pdf>.
46. Camp, J. L. (2002). *Confusion: A study in the theory of knowledge*. Cambridge, MA: Harvard University Press.
47. Carnap, R. (1942). *Introduction to semantics*. Cambridge, MA: Harvard University Press.
48. Carnap, R. (1947). *Meaning and necessity. A study in semantics and modal logic*. Chicago: University of Chicago Press.
49. Caton, C. E. (1963). A stipulation of a modal propositional calculus in terms of modalized truth-values. *Notre Dame Journal of Formal Logic*, 4, 224–226.
50. Chagrov, A., & Zakharyashev, M. (1997). *Modal logic*. Oxford: Clarendon Press.
51. Chellas, B. (1980). *Modal logic. An introduction*. Cambridge University Press.
52. Church, A. (1943). Review of Rudolf Carnap. *Introduction to Semantics. The Philosophical Review*, 52, 298–304.
53. Church, A. (1956). *Introduction to mathematical logic (Vol. I)* Revised and enlarged edition. Princeton: Princeton University Press.
54. Cignoli, R., D'Ottaviano, I., & Mundici, D. (2000). *Algebraic foundations of many-valued reasoning*. Dordrecht: Kluwer.
55. Czelakowski, J. (2001). *Protoalgebraic logics*. Dordrecht: Kluwer.
56. Cook, R. T. (2005). What's wrong with tonk (?). *Journal of Philosophical Logic*, 34, 217–226.
57. da Costa, N., Béziau, J.-Y., & Bueno, O. (1996). Malinowski and Suszko on many-valued logics: on the reduction of many-valuedness to two-valuedness. *Modern Logic*, 6, 272–299.
58. Curry, H. B. (1963). *Foundations of mathematical logic*. New York: McGraw-Hill.
59. D'Agostino, M., Gabbay, D., Hähnle, R., & Posegga, J. (Eds.). (1999). *Handbook of tableau methods*. Dordrecht: Kluwer.
60. Davidson, D. (1967). Truth and meaning. *Synthese*, 17, 304–323.
61. Davidson, D. (1969). True to the facts. *Journal of Philosophy*, 66, 748–764.
62. Devyatkin, L. (2007). Non-classical definitions of logical consequence (in Russian) (pp. 26–27). *Smirnov's readings in logic*. Moscow.
63. Devitt, M., & Sterelny, K. (1999). *Language and reality: An introduction to the philosophy of language*. Cambridge, MA: The MIT Press.
64. Dewitt, R. (2005). On retaining classical truths and classical deducibility in many-valued and fuzzy logics. *Journal of Philosophical Logic*, 34, 545–560.
65. Došen, K., & Schroeder-Heister, P. (Eds.). (1993). *Substructural logics*. Oxford: Oxford University Press.
66. Drai, D. (2002). The slingshot argument: an improved version. *Ratio*, 15, 194–204.
67. Dugundji, J. (1940). Note on a property of matrices for Lewis and Langford's calculi of propositions. *The Journal of Symbolic Logic*, 5, 150–151.
68. Dummett, M. (1977). *Elements of intuitionism*. Oxford: Oxford University Press.
69. Dummett, M. (1978). Truth. In *Truth and other enigmas* (pp. 1–24). Cambridge, MA: Harvard University Press (originally published In *Proceedings of the Aristotelian Society*, 1959, 59, 141–162).
70. Dummett, M. (1981). *Frege: philosophy of language* (2nd ed.). London: Duckworth Publishers.
71. Dummett, M. (1991). *Frege and other philosophers*. Oxford: Oxford University Press.
72. Dummett, M. (2000). *Elements of intuitionism* (2nd ed.). Oxford: Clarendon Press.
73. Dunn, J. M. (1966). *The algebra of intensional logics*. Doctoral Dissertation. University of Pittsburgh, Ann Arbor (University Microfilms).
74. Dunn, J. M. (1971). An intuitive semantics for first degree relevant implications (abstract). *Journal of Symbolic Logic*, 36, 362–363.
75. Dunn, J. M. (1976). Intuitive semantics for first-degree entailment and 'coupled trees'. *Philosophical Studies*, 29, 149–168.

76. Dunn, J. M. (1976). A Kripke-style semantics for R-Mingle using a binary accessibility relation. *Studia Logica*, 35, 163–172.
77. Dunn, J. M. (1986). Relevance logic and entailment. In D. Gabbay, F. Guenter (Eds.), *Handbook of philosophical logic* (Vol. III, pp. 117–224). Dordrecht: D. Reidel Publishing Company.
78. Dunn, J. M. (1987). Relevant predication 1: The formal theory. *Journal of Philosophical Logic*, 16, 347–381.
79. Dunn, J. M. (1999). A comparative study of various model-theoretic treatments of negation: a history of formal negation. In D.M. Gabbay, & H. Wansing (Eds.), *What is negation?* Applied Logic Series 13 (pp. 23–51). Dordrecht: Kluwer.
80. Dunn, J. M. (2000). Partiality and its dual. *Studia Logica*, 66, 5–40.
81. Dunn, J. M., & Hardegree, G. M. (2001). *Algebraic methods in philosophical logic*. Oxford: Clarendon Press.
82. Dunn, J. M., & Zhou, C. (2005). Negation in the context of gaggle theory. *Studia Logica*, 80, 235–264.
83. Enderton, H. (2001). *A mathematical introduction to logic* (2nd ed.). New York: Academic Press.
84. Fidel, M. M. (1978). An algebraic study of a propositional system of Nelson. In *Mathematical logic, Proceedings of the first Brazilian conference, Campinas 1977*. Lecture Notes in Pure and Applied Mathematics, 39, (pp. 99–117). New York: Marcel Dekker Inc.
85. Fine, K. (1975). Vagueness, truth and logic. *Synthese*, 30, 265–300.
86. Fitting, M. (1989). Bilattices and the theory of truth. *Journal of Philosophical Logic*, 18, 225–256.
87. Fitting, M. (1990). Kleene's logic, generalized. *Journal of Logic and Computation*, 1, 797–810.
88. Fitting, M. (1990). Bilattices in logic programming. In G. Epstein (Ed.), *The twentieth international symposium on multiple-valued logic* (pp. 238–246). IEEE-Press.
89. Fitting, M. (1991). Bilattices and the semantics of logic programming. *Journal of Logic Programming*, 11, 91–116.
90. Fitting, M. (1994). Kleene's three-valued logic and their children. *Fundamenta Informaticae*, 20, 113–131.
91. Fitting, M. (1997). A theory of truth that prefers falsehood. *Journal of Philosophical Logic*, 26, 447–500.
92. Fitting, M. (2006). Bilattices are nice things. In T. Bolander, V. Hendricks, S. A. Pedersen (Eds.), *Self-reference* (pp. 53–77). Stanford: CSLI-Publications.
93. Fitting, M., & Mendelsohn, R. L. (1999). *First-order modal logic*. Dordrecht: Kluwer.
94. Føllesdal, D. (1983). Situation semantics and the 'slingshot' argument. *Erkenntnis*, 19, 91–98.
95. Font, J. M. (1997). Belnap's four-valued logic and De Morgan lattices. *Logic Journal of IGPL*, 5, 1–29.
96. Font, J. M., & H'ajek, P. (2002). On Łukasiewicz's four-valued modal logic. *Studia Logica*, 70, 157–182.
97. van Fraassen, B. (1966). Singular terms, truth-value gaps, and free logic. *Journal of Philosophy*, 63, 481–495.
98. Frankowski, S. (2004). Formalization of a plausible inference. *Bulletin of the Section of Logic*, 33, 41–52.
99. Frankowski, S. (2004). *P*-consequence versus *q*-consequence operations. *Bulletin of the Section of Logic*, 33, 197–207.
100. Frege, G. (1891). Function and Begriff. Vortrag, gehalten in der Sitzung vom 9. Januar 1891 der Jenaischen Gesellschaft für Medicin und Naturwissenschaft, Jena: H. Pohle, Jena, 31 pp. (Reprinted in [106]).
101. Frege, G. (1892). Über Sinn und Bedeutung. *Zeitschrift für Philosophie und philosophische Kritik*, 100, 25–50 (reprinted in [106]).

102. Frege, G. (1918). Der Gedanke. *Beiträge zur Philosophie des deutschen Idealismus, I*, 58–77 (reprinted in [104]).
103. Frege, G. (1962). *Grundgesetze der Arithmetik, Bde. I und II* (2nd ed.). Darmstadt: Wissenschaftliche Buchgesellschaft.
104. Frege, G. (1967). *Kleine Schriften*. Ignacio Angelli (Ed.), Darmstadt: Wissenschaftliche Buchgesellschaft.
105. Frege, G. (1976). *Wissenschaftlicher Briefwechsel*. In G. Gabriel, H. Hermes, F. Kambartel, C. Thiel, & A. Veraart (Eds.), Hamburg: Felix Meiner Verlag.
106. Frege, G. (1986). Funktion, Begriff, Bedeutung. Fünf logische Studien. In G. Patzig (Ed.), Göttingen: Vandenhoeck & Ruprecht.
107. Frege, G. (1988). *Grundlagen der Arithmetik. Eine logisch-mathematische Untersuchung über den Begriff der Zahl*. Hamburg: Felix Meiner Verlag.
108. Frege, G. (1990). Einleitung in die Logik. In G. Frege (Ed.), *Schriften zur Logik und Sprachphilosophie* (pp. 74–91). Hamburg: Felix Meiner Verlag.
109. Gabbay, D. (1981). *Semantical investigations into Heyting's intuitionistic logic*. Dordrecht: Reidel.
110. Gabriel, G. (1984). Fregean connection: Bedeutung, value and truth-value. *The Philosophical Quarterly*, 34, 372–376.
111. Gabriel, G. (1986). Frege als Neukantianer. *Kant-Studien*, 77, 84–101.
112. Galatos, N., Jipsen, P., Kowalski, T., & Ono, H. (2007). *Residuated lattices: an algebraic glimpse at substructural logics*. Amsterdam: Elsevier.
113. Ganeri, J. (2002). Jaina logic and the philosophical basis of pluralism. *History and Philosophy of Logic*, 23, 267–281.
114. Ganter, B., & Wille, R. (1999). *Formal concept analysis: mathematical foundations*. Berlin: Springer.
115. Gargov, G. (1999). Knowledge, uncertainty and ignorance in logic: bilattices and beyond. *Journal of Applied Non-Classical Logics*, 9, 195–203.
116. Geach, P., & Black, M. (Eds.). (1952). *Translations from the philosophical writings of Gottlob Frege*. New York, NY: Philosophical Library.
117. Gentzen, G. (1935). Untersuchungen über das logische Schliessen. *Mathematische Zeitschrift*, 39, 176–210, 405–431.
118. Ginsberg, M. (1986). Multi-valued logics. In *Proceedings of AAAI-86, Fifth national conference on artificial intelligence* (pp. 243–247). Los Altos, CA: Morgan Kaufman Publishers.
119. Ginsberg, M. (1988). Multivalued logics: a uniform approach to reasoning in AI. *Computer Intelligence*, 4, 256–316.
120. Gödel, K. (1992). Zum intuitionistischen Aussagenkalkül. *Anzeiger der Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse*, 69, 65–66.
121. Gödel, K. (1944). Russell's mathematical logic. In P.A. Schilpp (Ed.), *The philosophy of Bertrand Russell* (pp. 125–153). Evanston and Chicago: Northwestern University Press.
122. Goguen, J. (1969). The logic of inexact concepts. *Synthese*, 19, 325–373.
123. Goré, R. (2000). Dual intuitionistic logic revisited. In R. Dyckhoff (Ed.), *Proceedings of the international conference on automated reasoning with analytic tableaux and related methods* (pp. 252–267). Berlin: Springer-Verlag.
124. Gottwald, S. (1989). *Mehrwertige Logik. Eine Einführung in Theorie und Anwendungen*. Berlin: Akademie-Verlag.
125. Gottwald, S. (2001). *A treatise on many-valued logic*. Baldock: Research Studies Press.
126. Gowans, C. (2004). Moral relativism, *The Stanford Encyclopedia of Philosophy* (Spring 2004 Edition). Edward N. Zalta (Ed.). <http://plato.stanford.edu/archives/spr2004/entries/moral-relativism/>
127. Grossmann, R. (1992). *The existence of the world*. London: Routledge.
128. Gurevich, Y. (1977). Intuitionistic logic with strong negation. *Studia Logica*, 36, 49–59.

129. Haack, S. (1996). *Deviant logic, fuzzy logic. Beyond the formalism*. Chicago: University of Chicago Press.
130. Hajek, P. (1998). *Metamathematics of fuzzy logic*. Dordrecht: Kluwer.
131. von Heusinger, K. (1997). *Salienz und Referenz Der Epsilonoperator in der Semantik der Nominalphrase und anaphorischer Pronomen*. *Studia Grammatica* 43. Berlin: Akademie Verlag.
132. Hilbert, D., & Bernays, P. (1970). *Grundlagen der Mathematik*. Bd. 2. Berlin: Springer.
133. Jain, P. (1997). *Investigating hypercontradictions*. (Unpublished Manuscript) (16 pp.).
134. James, W. (1956). The will to believe, 1897. In *Will to believe and other essays in popular philosophy* (pp. 21–31). New York, NY: Dover Publications.
135. Jaśkowski, S. (1999). A propositional calculus for inconsistent deductive systems. *Logic and Logical Philosophy*, 7, 35–56.
136. Jennings, R., & Schotch, P. (1984). The preservation of coherence. *Studia Logica*, 43, 89–106.
137. Kamide, N. (2002). Sequent calculi for intuitionistic linear logic with strong negation. *Logic Journal of the IGPL*, 10, 653–678.
138. Kamide, N. (2004). Quantized linear logic, involutive quantales and strong negation. *Studia Logica*, 77, 355–384.
139. Kamide, N. (2005). A cut-free system for 16-valued reasoning. *Bulletin of the Section of Logic*, 34, 213–226.
140. Kamide, N. (2005). Gentzen-type methods for bilattice negation. *Studia Logica*, 80, 265–289.
141. Kamide, N., & Wansing, H. (2009). Sequent calculi for some trilattice logics. *The Review of Symbolic Logic*, 2, 374–395.
142. Kamide, N., & Wansing, H. (2011). Completeness and cut-elimination theorems for trilattice logics. *Annals of Pure and Applied Logic*, 162, 816–835
143. Kamide, N., & Wansing, H. (2011). Proof theory of paraconsistent logic: A uniform perspective, (60 pp.).
144. Karpenko, A. (1983). Factor semantics for n -valued logics. *Studia Logica*, 42, 179–185.
145. Karpenko, A. (1989). Truth values: what are they? (in Russian). In V. Smirnov (Ed.), *Investigations in non-classical logics* (pp. 38–53). Moscow: Nauka.
146. Keefe, R. (2000). *Theories of vagueness*. Cambridge: Cambridge University Press.
147. Kracht, M. (1998). On extensions of intermediate logics by strong negation. *Journal of Philosophical Logic*, 27, 49–73.
148. Krause, D., & Béziau, J.-Y. (1997). Relativizations of the principle of identity. *Logic Journal of the IGPL*, 5, 1–12.
149. Kuhn, S. (1980). Quantifiers as modal operators. *Studia Logica*, 39, 145–158.
150. Lakshmanan, L. V. S., & Sadri, F. (1994). Probabilistic deductive databases. In M. Bruynooghe (Ed.), *Proceedings of 1994 international logic programming symposium* (pp. 254–268). MIT Press.
151. Lewis, C. I. (1943). The modes of meaning. *Philosophy and Phenomenological Research*, 4, 236–249.
152. Lewis, D. (1982). Logic for equivocators. *Noûs*, 16, 431–441.
153. Lowe, J. (1995). The metaphysics of abstract objects. *The Journal of Philosophy*, 92, 509–524.
154. Lowe, J. (1997). Objects and criteria of identity. In R. Hale, & C. Wright (Eds.), *A companion to the philosophy of language* (pp. 613–633). Oxford: Basil Blackwell.
155. Łukasiewicz, J. (1918). Farewell lecture by professor Jan Łukasiewicz, delivered in the Warsaw University Lecture Hall in March, 1918. In [157], 87–88.
156. Łukasiewicz, J. (1920). O logice trójwartościowej. *Ruch Filozoficzny*, 5, 170–171. (English translation as “On three-valued logic.” In [157], 87–88).
157. Łukasiewicz, J. (1921). Logika dwuwartościowa. *Przegląd Filozoficzny*, 13, 189–205 (English translation as “Two-valued logic.” In [157], 89–109).

158. Łukasiewicz, J. (1970). Selected works. Amsterdam: North-Holland.
159. Łukasiewicz J. (1993) *Über den Satz des Widerspruch bei Aristoteles*. Hildesheim: Georg Olms Verlag.
160. MacFarlane, J. (2002). Review of Stephen Neale, *Facing Facts*. *Notre Dame Philosophical Reviews* (<http://ndpr.nd.edu/review.cfm?id=1117>).
161. MacFarlane, J. (2008). Truth in the garden of forking paths. In M. Kölbel, M. García-Carpintero (Eds.), *Relative Truth* (pp. 81–102). Oxford: Oxford University Press.
162. MacIntosh, J. J. (1991). Adverbially qualified truth values. *Pacific Philosophical Quarterly*, 72, 131–142.
163. Malinowski, G. (1990). Q -consequence operation. *Reports on Mathematical Logic*, 24, 49–59.
164. Malinowski, G. (1990). Towards the concept of logical many-valuedness. *Folia Philosophica*, 7, 97–103.
165. Malinowski, G. (1993). *Many-valued logics*. Oxford: Clarendon Press.
166. Malinowski, G. (1994). Inferential many-valuedness. In J. Woleński (Ed.), *Philosophical Logic in Poland* (pp. 75–84). Dordrecht: Kluwer.
167. Malinowski, G. (2001). Inferential paraconsistency. *Logic and Logical Philosophy*, 8, 83–89.
168. Malinowski, G. (2004). Inferential intensionality. *Studia Logica*, 76, 3–16.
169. Malinowski, G. (2009). Beyond three inferential values. *Studia Logica*, 92, 203–213.
170. Materna, P. (2000). Sense, denotation, reference: A terminological/philosophical chaos. Retrieved from <http://www.phil.muni.cz/materna/sense.html>. Cited 2000.
171. McGinn, C. (1976). A note on the Frege argument. *Mind*, 85, 422–423.
172. Mehlberg, H. (1958). *The reach of science*. Toronto: University of Toronto Press.
173. Meyer, R. K. (1978). *Why I am not a relevantist*, Research paper, no. 1, Australian National University, Logic Group, Research School of the Social Sciences, Canberra.
174. Miura, S. (1966). A remark on the intersection of two logics. *Nagoya Mathematical Journal*, 26, 167–171.
175. Monk, J. D. (2000). An introduction to cylindric set algebras. *Logic Journal of IGPL*, 8, 451–496.
176. Muskens, R. (1999). On partial and paraconsistent logics. *Notre Dame Journal of Formal Logic*, 40, 352–374.
177. Neale, S. (1995). The philosophical significance of Gödel's slingshot. *Mind*, 104, 761–825.
178. Neale, S. (2001). *Facing facts*. Oxford: Oxford University Press.
179. Negri, S., & von Plato, J. (2001). *Structural proof theory*. Cambridge: Cambridge University Press.
180. Nelson, D. (1949). Constructible falsity. *Journal of Symbolic Logic*, 14, 16–26.
181. Odintsov, S. (2003). Algebraic semantics for paraconsistent Nelson's logic. *Journal of Logic and Computation*, 13, 453–468.
182. Odintsov, S. (2008). *Constructive negations and paraconsistency*. Dordrecht: Springer.
183. Odintsov, S. (2009). On axiomatizing Shramko-Wansing's logic. *Studia Logica*, 93, 407–428.
184. Odintsov, S., & Wansing, H. (2004). Constructive predicate logic and constructive modal logic. Formal duality versus semantical duality. In V. Hendricks, et al. (Eds.), *First-order logic revisited* (pp. 269–286). Berlin: Logos Verlag.
185. Olson, K. R. (1987). *An essay on facts*. Lecture notes. No. 6, Stanford: CSLI Publications.
186. Omyła, M. (2003). Possible worlds in the language of non-Fregean logic. *Studies in Logic, Grammar and Rhetoric*, 6, 7–15.
187. Omyła, M. (2007). Remarks on non-Fregean logic. *Studies in Logic, Grammar and Rhetoric*, 10, 21–31.
188. Ono, H. (2003). Substructural logics and residuated lattices – an introduction. In V. Hendricks, & J. Malinowski (Eds.), *Trends in logic. 50 years of Studia Logica* (pp. 193–228). Dordrecht: Kluwer.

189. Oppy, G. (1997). The philosophical insignificance of Gödel's slingshot. Response to Stephen Neale. *Mind*, 106, 121–141.
190. Paoli, F. (2002). *Substructural logics: A primer*. Dordrecht: Kluwer.
191. Perry, J. (1996). Evading the slingshot. In A. Clark, J. Ezquerro, & J. Larrazabal (Eds.), *Philosophy and cognitive science. Categories, consciousness, and reasoning*. Dordrecht: Kluwer.
192. Poggiolesi, F. (2010). Display calculi and other modal calculi: a comparison. *Synthese*, 173, 259–279.
193. Popper, K. (1972). *Objective knowledge: An evolutionary approach*. Oxford: Oxford University Press.
194. Post, E. (1921). Introduction to a general theory of elementary propositions. *American Journal of Mathematics*, 43, 163–185.
195. Pottinger, G. (1979). On analysing relevance constructively. *Studia Logica*, 38, 171–185.
196. Priest, G. (1979). Logic of Paradox. *Journal of Philosophical Logic*, 8, 219–241.
197. Priest, G. (1984). Hyper-contradictions. *Logique et Analyse*, 27, 237–243.
198. Priest, G. (2008). *An introduction to non-classical logic. From if to is*. Cambridge: Cambridge University Press.
199. Priest, G. (2008). Many-valued modal logics: A simple approach. *Review of Symbolic Logic*, 1, 190–203.
200. Quine, W. V. O. (1953). Reference and modality. In *From a logical point of view* (pp. 139–159). Cambridge, MA: Harvard University Press.
201. Quine, W. V. O. (1960). *Word and object*. Cambridge, MA: Wiley and MIT Press.
202. Quine, W. V. O. (1969). *Ontological relativity and other essays*. New York, NY: Columbia University Press.
203. Rauszer, C. (1980). *An algebraic and Kripke-style approach to a certain extension of intuitionistic logic*. Dissertationes Mathematicae 167, Institute of Mathematics. Warsaw: Polish Academy of Sciences.
204. Rautenberg, W. (1979). *Klassische und nichtklassische Aussagenlogik*. Braunschweig: Vieweg.
205. Reck, E. (2007). Frege on truth, judgment, and objectivity. *Grazer Philosophische Studien*, 75, 149–173.
206. Rescher, N. (1965). An intuitive interpretation of systems of four-valued logic. *Notre Dame Journal of Formal Logic*, 6, 154–156.
207. Rescher, N. (1969). *Many-valued logic*. New York, NY: McGraw-Hill.
208. Restall, G. (2000). *An introduction to substructural logics*. London: Routledge.
209. Rose, A. (1950). A lattice-theoretic characterization of three-valued logic. *Journal of the London Mathematical Society*, 25, 255–259.
210. Rose, A. (1951). Systems of logics whose truth-values form lattices. *Mathematische Annalen*, 123, 152–165.
211. Routley, R. (1975). Universal semantics? *Journal of Philosophical Logic*, 4, 327–356.
212. Ruet, P. (2000). Non-commutative logic II: Sequent calculus and phase semantics. *Mathematical Structures in Computer Science*, 10, 277–312.
213. Ruffino, M. (2003). Wahrheit als Wert und als Gegenstand in der Logik Freges. In D. Greimann (Ed.), *Das Wahre und das Falsche. Studien zu Freges Auffassung von Wahrheit* (pp. 203–221). Hildesheim: Georg Olms Verlag.
214. Ruffino, M. (2004). Church's and Gödel's slingshot arguments. *Abstracta*, 1, 23–39.
215. Russell, B. (1919). *Introduction to mathematical philosophy*. London: George Allen and Unwin.
216. Ryan, M., & Sadler, M. (1992). Valuation systems and consequence relations. In S. Abramsky, D. Gabbay, T. Maibaum (Eds.), *Handbook of logic in computer science*. (Vol. 1, pp. 1–78). Oxford: Oxford University Press.
217. Schöter, A. (1996). Evidential bilattice logic and lexical inference. *Journal of Logic, Language and Information*, 5, 65–105.

218. Schröter, K. (1955). Methoden zur Axiomatisierung beliebiger Aussagen- und Prädikatenkalküle. *Zeitschrift für mathematische Logik und Grundlagen der Mathematik*, 1, 241–251.
219. Scott, D. (1973). Models for various type-free calculi. In P. Suppes, E. Nagel, A. Tarski (Eds.), *Logic, methodology and philosophy of science* (Vol. IV, pp. 157–187). Amsterdam: North-Holland.
220. Scott, D. (1973). Background to formalization. In H. Leblanc (Ed.), *Truth, syntax and modality* (pp. 244–273). Amsterdam: North-Holland.
221. Searle, J. (1995). Truth: a reconsideration of Strawson's view. In L.E. Hahn (Ed.), *The Philosophy of P. F. Strawson*. Chicago/Lasalle: Open Court Publishing.
222. Shramko, Y. (1989). On the problem of relevant entailment for intuitionistic logic (in Russian). In *Logico-philosophical investigations* (Vol. 1, pp. 165–175). Moscow.
223. Shramko, Y. (1998). A philosophically plausible modified Grzegorzczak semantics for first-degree intuitionistic entailment. *Logique et Analyse*, 161-162-163, 167–188.
224. Shramko, Y. (1999). *Intuitionismus und Relevanz*. Berlin: Logos-Verlag.
225. Shramko, Y. (2000). American plan for intuitionistic logic 1: an intuitive background. In T. Childers (Ed.), *The logica yearbook 1999* (pp. 53–64). Prague: Filosofia.
226. Shramko, Y. (2000). American plan for intuitionistic logic 2: generalized Kripke models (in Russian), *Logical Studies* (Online Journal), 5: <http://logic.ru/en/node/160>.
227. Shramko, Y. (2002). Generalized truth values: lattices and multilattices (in Russian), *Logical Investigations*, Moscow, 9: 264–291. (The On-line version see In *Logical Studies* (Online Journal), 8, 2002: <http://logic.ru/en/node/185>).
228. Shramko, Y. (2004). Die logische Wahrheitswertontologie. In B. Christiansen, & U. Scheffler (Eds.), *Was folgt. Themen zu Wessel* (pp. 149–169). Berlin: Logos-Verlag.
229. Shramko, Y. (2005). Dual intuitionistic logic and a variety of negations: the logic of scientific research. *Studia Logica*, 80, 347–367.
230. Shramko, Y. (2009). Truth and Falsehood: what are truth values and what they are needed for (in Russian). *Logos*, 70, 96–121.
231. Shramko, Y., Dunn, J. M., & Takenaka, T. (2001). The trilattice of constructive truth values. *Journal of Logic and Computation*, 11, 761–788.
232. Shramko, Y., & Wansing, H. (2005). Some useful 16-valued logics: how a computer network should think. *Journal of Philosophical Logic*, 34, 121–153.
233. Shramko, Y., & Wansing, H. (2006). Hypercontradictions, generalized truth values, and logics of truth and falsehood. *Journal of Logic, Language and Information*, 15, 403–424.
234. Shramko, Y., & Wansing, H. (2007). Entailment relations and/as truth values. *Bulletin of the Section of Logic*, 36, 131–143.
235. Shramko, Y., & Wansing, H. (2009). The Slingshot-Argument and sentential identity. *Studia Logica*, 91, 429–455.
236. Shramko, Y., & Wansing H. (2009). Truth Values. Part I, *Special issue of Studia Logica*, 91(3).
237. Shramko, Y., & Wansing H. (2009). Truth Values. Part II, *Special issue of Studia Logica*, v. 92, No 2.
238. Shramko, Y., & Wansing, H. (2010). Truth values, *The Stanford Encyclopedia of Philosophy* (Summer 2010 Edition), Edward N. Zalta (Ed.), URL = <http://plato.stanford.edu/archives/sum2010/entries/truth-values/>.
239. Shramko, Y., & Zaitsev, D. (2004). Entailment and designated values (in Russian). *Logical Investigations*, 11, 126–137.
240. Simmons, K. (2002). Semantical and logical paradox. In D. Jacquette (Ed.), *A companion to philosophical logic* (pp. 115–130). Malden/Mass: Blackwell Publishes.
241. Sluga, H. (2002). Frege on the indefinability of truth. In E. Reck (Ed.), *From Frege to Wittgenstein: perspectives on early analytic philosophy* (pp. 75–95). Oxford: Oxford University Press.

242. Stelling, J. (2009). *Consequence relations, truth and logic*. University of Leipzig: Master thesis.
243. Suszko, R. (1968). Ontology in the Tractatus of L. Wittgenstein. *Notre Dame Journal of Formal Logic*, 9, 7–33.
244. Suszko, R. (1971). Identity connective and modality. *Studia Logica*, 27, 7–39.
245. Suszko, R. (1975). Abolition of the Fregean axiom. In R. Parikh (Ed.), *Logic colloquium*. Lecture notes in mathematics. 453 (pp. 169–239). Berlin: Springer.
246. Suszko, R. (1977). The Fregean axiom and Polish mathematical logic in the 1920's. *Studia Logica*, 36, 373–380.
247. Tarski, A. (1930). Über einige fundamentale Begriffe der Metamathematik. *Comptes Rendus des Séances de la Société des Sciences et des Lettres de Varsovie, XXIII* (Classe III), pp. 22–29.
248. Tarski, A. (1930). Fundamentale Begriffe der Methodologie der deduktiven Wissenschaften I. *Monatshefte für Mathematik und Physik*, 37, 361–404.
249. Tennant, N. (1987). Natural deduction and sequent calculus for intuitionistic relevant logic. *Journal of Symbolic Logic*, 52, 665–680.
250. Tennant, N. (1997). *The taming of The True*, Oxford University Press.
251. Thijsse, E. (1992). *Partial logic and knowledge representation*. PhD Thesis. Delft: Katholieke Universiteit Brabant Eburon Publishers.
252. Troelstra, A., & Schwichtenberg, H. (2000). *Basic proof theory*. (2nd ed.), Cambridge: Cambridge University Press.
253. Tsuji, M. (1998). Many-valued logics and Suszko's Thesis revisited. *Studia Logica*, 60, 299–309.
254. Tuomela, R. (1985). Truth and best explanation. *Erkenntnis*, 22, 271–299.
255. Urbas, I. (1996). Dual-intuitionistic logic. *Notre Dame Journal of Formal Logic*, 37, 440–451.
256. Urquhart, A. (1973). An interpretation of many-valued logic, *Zeitschrift für mathematische Logik und Grundlagen der Mathematik*, 19, 111–114.
257. Urquhart, A. (1986). Many-valued logic. In D. Gabbay, F. Guenther (Eds.), *Handbook of philosophical logic* (Vol. III, pp. 71–116). Dordrecht: D. Reidel Publishing Co.
258. Vakarelov, D. (1977). Notes on N -lattices and constructive logic with strong negation. *Studia Logica*, 36, 109–125.
259. Vardi, M. (1986). On epistemic logic and logical omniscience. In J.Y. Halpern (Ed.), *Theoretical aspects of reasoning about knowledge. Proceedings of the 1986 conference* (pp. 293–305). Los Altos, CA: Morgan Kaufmann Publishers.
260. Vasiliev, N. A. (1989). *Imaginary logic*. Moscow: Nauka.
261. Voishvillo, E. K. (1996). A theory of logical relevance. *Logique et Analyse*, 155–156, 207–228.
262. Voutsadakis, G. (2002). Poliadic concept analysis. *Order*, 19, 295–304.
263. Wagner, S. J. (1986). California semantics meets the Great Fact. *Notre Dame Journal of Formal Logic*, 27, 430–455.
264. Wansing, H. (1993). *The logic of information structures*. Lecture Notes in Artificial Intelligence 681. Berlin: Springer-Verlag.
265. Wansing, H. (1998). *Displaying modal logic*. Dordrecht: Kluwer.
266. Wansing, H. (1999). Predicate logics on display. *Studia Logica*, 62, 49–75.
267. Wansing, H. (2001). Negation. In L. Goble (Ed.), *The Blackwell guide to philosophical logic* (pp. 415–436). Cambridge, MA: Basil Blackwell Publishers.
268. Wansing, H. (2001). Short dialogue between M (Mathematician) and P (Philosopher) on multi-lattices. *Journal of Logic and Computation*, 11, 759–760.
269. Wansing, H. (2006). Connectives stranger than tonk. *Journal of Philosophical Logic*, 35, 653–660.
270. Wansing, H. (2006). Logical connectives for constructive modal logic. *Synthese*, 150, 459–482.
271. Wansing, H. (2008). Constructive negation, implication, and co-implication. *Journal of Applied Non-Classical Logics*, 18, 341–364.

272. Wansing, H. (2010). The power of Belnap. Sequent systems for $SIXTEEN_3$. *Journal of Philosophical Logic*, 39, 369–393.
273. Wansing, H., & Belnap, N. (2010). Generalized truth values. A reply to Dubois. *Logic Journal of the Interest Group in Pure and Applied Logic*, 18, 921–935.
274. Wansing, H., & Kamide, N. (2010). Intuitionistic trilattice logics. *Journal of Logic and Computation*, 20, 1201–1229.
275. Wansing, H., & Shramko, Y. (2008). Harmonious many-valued propositional logics and the logic of computer networks. In C. Dégrémont, L. Keiff & H. Rückert (Eds.), *Dialogues, logics and other strange things. Essays in honour of Shahid Rahman* (pp. 491–516), College Publications.
276. Wansing, H., & Shramko, Y. (2008). Suszko's Thesis, inferential many-valuedness, and the notion of a logical system, *Studia Logica*, 88, 89(147), 405–429.
277. Wansing, H., & Shramko Y. (2008). A note on two ways of defining a many-valued logic. In Pelis M. (Ed.), *Logica yearbook 2007* (pp. 255–266). Prague: Filosofia.
278. Widerker, D. (1983). The extensionality argument. *Nous*, 17, 457–468.
279. Wille, R. (1995). The basic theorem of triadic concept analysis. *Order*, 12, 149–158.
280. Williamson, T. (1990). *Identity and discrimination*. Oxford: Blackwell.
281. Williamson, T. (1994). *Vagueness*. London: Routledge.
282. Wilson, G. (1978). On definite and indefinite descriptions. *Philosophical Review*, 87, 48–76.
283. Windelband, W. (1915). Präludien: Aufsätze und Reden zur Philosophie und ihrer Geschichte, 5. Aufgabe, Bnd. 1., Tübingen.
284. Wójcicki, R. (1970). Some remarks on the consequence operation in sentential logics. *Fundamenta Mathematicae*, 68, 269–279.
285. Wójcicki, R. (1984). R. Suszko's situational semantics. *Studia Logica*, 43, 326–327.
286. Wójcicki, R. (1986). Situation semantics for non-Fregean logic. *Journal of Non-Classical Logic*, 3, 33–67.
287. Wójcicki, R. (1988). *Theory of logical calculi. Basic theory of consequence operations*. Dordrecht: Kluwer.
288. Wójtowicz, A. (2005). The Slingshot Argument and non-Fregean logic. In A. Brozek, J. Jadacki, W. Strawinski (Eds.), *Logic, methodology and philosophy of science at Warsaw University* (Vol. 2, pp. 185–192). Warsaw: Wydawnictwo Naukowe Semper.
289. Wrigley, A. (2006). Abstracting propositions. *Synthese*, 151, 157–176.
290. Zach, R. (1993). *Proof theory of finite-valued logics*, Diploma Thesis, Technische Universität Wien, Vienna, Technical Report TUV-E185.2-Z.1-93. (Available at <http://www.ucalgary.ca/rzach/papers/ptmvl.html>)
291. Zadeh, L. (1965). Fuzzy sets. *Information and Control*, 8, 338–53.
292. Zadeh, L. (1975). Fuzzy logic and approximate reasoning. *Synthese*, 30, 407–425.
293. Zaitsev, D. (2009). A few more useful 8-valued logics for reasoning with tetralattice $EIGHT_4$. *Studia Logica*, 92, 265–280.
294. Zalta, E. (1983). *Abstract objects: an introduction to axiomatic metaphysics*. Dordrecht: D. Reidel Publishing Co.

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