

# Bibliography

- [AB75] Alan Ross Anderson and Nuel D. Belnap, Jr. *Entailment. The Logic of Relevance and Necessity*, volume 1. Princeton University Press, 1975.
- [ABNK07] Arnon Avron, Jonathan Ben-Naim, and Beata Konikowska. Cut-free ordinary sequent calculi for logics having generalized finite-valued semantics. *Logica Universalis*, 1:41–70, 2007.
- [AK05] Arnon Avron and Beata Konikowska. Multi-valued calculi for logics based on non-determinism. *Journal of the Interest Group of Pure and Applied Logic*, 10:365–387, 2005.
- [AL01] Arnon Avron and Iddo Lev. A formula-preferential base for paraconsistent and plausible non-monotonic reasoning. In *Proceedings of the Workshop on Inconsistency in Data and Knowledge (KRR-4) Int. Joint Conf. on AI (Ijcai 2001)*, pages 60–70, 2001.
- [Ali06] Atocha Aliseda. *Abductive Reasoning. Logical Investigations into Discovery and Explanation*. Springer, Dordrecht, 2006.
- [Arr77] Ayda I. Arruda. On the imaginary logic of N.A. Vasil’ev. In Ayda I. Arruda, Newton C.A. da Costa, and R. Chuaqui, editors, *Non-classical Logics, Model Theory and Computability*, pages 3–24. North-Holland, Amsterdam, 1977.
- [Avr05] Arnon Avron. Non-deterministic matrices and modular semantics of rules. In Jean-Yves Béziau, editor, *Logica Universalis*, pages 149–167. Birkhäuser Verlag, Basel – Boston – Berlin, 2005.
- [Bat80] Diderik Batens. Paraconsistent extensional propositional logics. *Logique et Analyse*, 90–91:195–234, 1980.
- [Bat85a] Diderik Batens. Dynamic dialectical logics as a tool to deal with and partly eliminate unexpected inconsistencies. In J. Hintikka and F. Vandamme, editors, *The Logic of Discovery and the Logic of Discourse*, pages 263–271. Plenum Press, New York, 1985.
- [Bat85b] Diderik Batens. Meaning, acceptance, and dialectics. In Joseph C. Pitt, editor, *Change and Progress in Modern Science*, pages 333–360. Reidel, Dordrecht, 1985.
- [Bat86a] Diderik Batens. Dialectical dynamics within formal logics. *Logique et Analyse*, 114:161–173, 1986.

- [Bat86b] Diderik Batens. Static and dynamic paraconsistent logics and their use in expert systems. *CC-AI*, 3:33–50, 1986.
- [Bat87] Diderik Batens. Relevant implication and the weak deduction theorem. *Studia Logica*, 46:239–245, 1987.
- [Bat89] Diderik Batens. Dynamic dialectical logics. In Priest et al. [PRN89], pages 187–217.
- [Bat95] Diderik Batens. Blocks. The clue to dynamic aspects of logic. *Logique et Analyse*, 150–152:285–328, 1995. Appeared 1997.
- [Bat96] Diderik Batens. Functioning and teachings of adaptive logics. In J. Van Benthem, F. H. Van Eemeren, R. Grootendorst, and F. Veltman, editors, *Logic and Argumentation*, pages 241–254. North-Holland, Amsterdam, 1996.
- [Bat98] Diderik Batens. Dynamic semantics applied to inconsistency-adaptive logics. In *Logical Investigations*, volume 5, pages 74–85. Moscow, “NAUKA”, 1998.
- [Bat99a] Diderik Batens. Contextual problem solving and adaptive logics in creative processes. *Philosophica*, 64:7–31, 1999. Appeared 2001.
- [Bat99b] Diderik Batens. Inconsistency-adaptive logics. In Orłowska [Orł99], pages 445–472.
- [Bat99c] Diderik Batens. Linguistic and ontological measures for comparing the inconsistent parts of models. *Logique et Analyse*, 165–166:5–33, 1999. Appeared 2002.
- [Bat99d] Diderik Batens. Zero logic adding up to classical logic. *Logical Studies*, 2:15, 1999. (Electronic Journal: <http://www.logic.ru/LogStud/02/LS2.html>).
- [Bat00a] Diderik Batens. Minimally abnormal models in some adaptive logics. *Synthese*, 125:5–18, 2000.
- [Bat00b] Diderik Batens. Rich inconsistency-adaptive logics. The clash between heuristic efficiency and realistic reconstruction. In François Beets and Éric Gillet, editors, *Logique en perspective. Mélanges offerts à Paul Gochet*, pages 513–543. Éditions OUSIA, Brussels, 2000.
- [Bat00c] Diderik Batens. Towards the unification of inconsistency handling mechanisms. *Logic and Logical Philosophy*, 8:5–31, 2000. Appeared 2002.
- [Bat01] Diderik Batens. A general characterization of adaptive logics. *Logique et Analyse*, 173–175:45–68, 2001. Appeared 2003.
- [Bat02a] Diderik Batens. In defence of a programme for handling inconsistencies. In Meheus [Meh02b], pages 129–150.

- [Bat02b] Diderik Batens. On some remarkable relations between paraconsistent logics, modal logics, and ambiguity logics. In Walter A. Carnielli, Marcelo E. Coniglio, and Itala M. Loffredo D'Ottaviano, editors, *Paraconsistency. The Logical Way to the Inconsistent*, pages 275–293. Marcel Dekker, New York, 2002.
- [Bat03a] Diderik Batens. Criteria causing inconsistencies. General gluts as opposed to negation gluts. *Logic and Logical Philosophy*, 11/12:5–37, 2003.
- [Bat03b] Diderik Batens. A formal approach to problem solving. In Claudio Delrieux and Javier Legris, editors, *Computer Modeling of Scientific Reasoning*, pages 15–26. Universidad Nacional del Sur, Bahia Blanca, Argentina, 2003.
- [Bat03c] Diderik Batens. A strengthening of the Rescher–Manor consequence relations. *Logique et Analyse*, 183–184:289–313, 2003. Appeared 2005.
- [Bat04] Diderik Batens. The need for adaptive logics in epistemology. In Dov Gabbay, S. Rahman, J. Symons, and J. P. Van Bendegem, editors, *Logic, Epistemology and the Unity of Science*, pages 459–485. Kluwer Academic Publishers, Dordrecht, 2004.
- [Bat05a] Diderik Batens. On a logic of induction. In Roberto Festa, Atocha Aliseda, and Jeanne Peijnenburg, editors, *Confirmation, Empirical Progress, and Truth Approximation. Essays in Debate with Theo Kuipers. Vol. 1*, volume 83 of *Poznan Studies in the Philosophy of the Sciences and the Humanities*, pages 221–242. Rodopi, Amsterdam/New York, 2005. (Contains uncorrected proofs; see [Bat06c] for correct version.).
- [Bat05b] Diderik Batens. A procedural criterion for final derivability in inconsistency-adaptive logics. *Journal of Applied Logic*, 3:221–250, 2005.
- [Bat05c] Diderik Batens. The theory of the process of explanation generalized to include the inconsistent case. *Synthese*, 143:63–88, 2005.
- [Bat06a] Diderik Batens. A diagrammatic proof search procedure as part of a formal approach to problem solving. In Lorenzo Magnani, editor, *Model Based Reasoning in Science and Engineering. Cognitive Science, Epistemology, Logic*, volume 2 of *Studies in Logic*, pages 265–284. King's College Publications, London, 2006.
- [Bat06b] Diderik Batens. Narrowing down suspicion in inconsistent premise sets. In Malinowski and Pietruszczak [MP06], pages 185–209.
- [Bat06c] Diderik Batens. On a logic of induction. *L&PS – Logic & Philosophy of Science*, IV(1):3–32, 2006. (Corrected version of [Bat05a].).
- [Bat07a] Diderik Batens. Content guidance in formal problem solving processes. In Pombo and Gerner [PG07], pages 121–156.

- [Bat07b] Diderik Batens. A universal logic approach to adaptive logics. *Logica Universalis*, 1:221–242, 2007.
- [Bat09] Diderik Batens. Adaptive  $C_n$  logics. In Walter A. Carnielli, Marcelo E. Coniglio, and Itala M. Loffredo D’Ottaviano, editors, *The Many Sides of Logic*, volume 21 of *Studies in Logic*, pages 27–45. College Publications, London, 2009.
- [Batar] Diderik Batens. A poor person’s semantics for modal logics. To appear.
- [BBJ02] George S. Boolos, John P. Burgess, and Richard J. Jeffrey. *Computability and Logic*. Cambridge University Press, 2002. (Fourth edition).
- [BDC04] Diderik Batens and Kristof De Clercq. A rich paraconsistent extension of full positive logic. *Logique et Analyse*, 185–188:227–257, 2004. Appeared 2005.
- [BDCK99] Diderik Batens, Kristof De Clercq, and Natasha Kurtonina. Embedding and interpolation for some paralogics. The propositional case. *Reports on Mathematical Logic*, 33:29–44, 1999.
- [BDCVM09] Diderik Batens, Kristof De Clercq, Peter Verdée, and Joke Meheus. Yes fellows, most human reasoning is complex. *Synthese*, 166:113–131, 2009.
- [BDP97] Salem Benferhat, Didier Dubois, and Henri Prade. Some syntactic approaches to the handling of inconsistent knowledge bases: A comparative study. Part 1: The flat case. *Studia Logica*, 58:17–45, 1997.
- [BDP99] Salem Benferhat, Didier Dubois, and Henri Prade. Some syntactic approaches to the handling of inconsistent knowledge bases: A comparative study. Part 2: The prioritized case. In Orłowska [Orł99], pages 473–511.
- [Béz02] Jean-Yves Béziau. S5 is a paraconsistent logic and so is first-order classical logic. *Logical Investigations*, 9:301–309, 2002.
- [Béz06] Jean-Yves Béziau. The paraconsistent logic Z (A possible solution to Jaskowski’s problem). *Logic and Logical Philosophy*, 15:99–111, 2006.
- [BH01] Diderik Batens and Lieven Haesaert. On classical adaptive logics of induction. *Logique et Analyse*, 173–175:255–290, 2001. Appeared 2003.
- [BJ89] George S. Boolos and Richard J. Jeffrey. *Computability and Logic*. Cambridge University Press, 1989. (Third edition).
- [BM00a] Diderik Batens and Joke Meheus. The adaptive logic of compatibility. *Studia Logica*, 66:327–348, 2000.

- [BM00b] Diderik Batens and Joke Meheus. A tableau method for inconsistency-adaptive logics. In Roy Dyckhoff, editor, *Automated Reasoning with Analytic Tableaux and Related Methods*, volume 1847 of *Lecture Notes in Artificial Intelligence*, pages 127–142. Springer, 2000.
- [BM01a] Diderik Batens and Joke Meheus. On the logic and pragmatics of the process of explanation. In Mika Kiikeri and Petri Ylikoski, editors, *Explanatory Connections. Electronic Essays Dedicated to Matti Sintonen*. <http://www.valt.helsinki.fi/kfil/matti/>, 2001. 22 pp.
- [BM01b] Diderik Batens and Joke Meheus. Shortcuts and dynamic marking in the tableau method for adaptive logics. *Studia Logica*, 69:221–248, 2001.
- [BMPV03] Diderik Batens, Joke Meheus, Dagmar Provijn, and Liza Verhoeven. Some adaptive logics for diagnosis. *Logic and Logical Philosophy*, 11/12:39–65, 2003.
- [BMPVB00] Diderik Batens, Chris Mortensen, Graham Priest, and Jean Paul Van Bendegem, editors. *Frontiers of Paraconsistent Logic*. Research Studies Press, Baldock, UK, 2000.
- [BP01] Diderik Batens and Dagmar Provijn. Pushing the search paths in the proofs. A study in proof heuristics. *Logique et Analyse*, 173–175:113–134, 2001. Appeared 2003.
- [Bro90] Bryson Brown. How to be realistic about inconsistency in science. *Studies in History and Philosophy of Science*, 21:281–294, 1990.
- [BSV09] Diderik Batens, Christian Straßer, and Peter Verdée. On the transparency of defeasible logics: Equivalent premise sets, equivalence of their extensions, and maximality of the lower limit. *Logique et Analyse*, 207:281–304, 2009.
- [Car50] Rudolf Carnap. *Logical Foundations of Probability*. University of Chicago Press, Chicago, 1950.
- [Car52] Rudolf Carnap. *The Continuum of Inductive Methods*. University of Chicago Press, Chicago, 1952.
- [CCG<sup>+</sup>08] Walter Carnielli, Marcelo Coniglio, Dov M. Gabbay, Paula Gouveia, and Cristina Sernedas. *Analysis and Synthesis of Logics. How to Cut and Paste Reasoning Systems*, volume 35 of *Applied Logic Series*. Springer, Dordrecht, 2008.
- [CCM07] Walter A. Carnielli, Marcelo E. Coniglio, and João Marcos. Logics of formal inconsistency. In D. Gabbay and F. Guenther, editors, *Handbook of Philosophical Logic*, volume 14, pages 1–93. Springer, Springer, 2007.
- [Ciu] Janusz Ciuciura. A new real axiomatization of the discursive logic  $D_2$ .

- [CM99] Walter A. Carnielli and João Marcos. Limits for paraconsistent calculi. *Notre Dame Journal of Formal Logic*, 40:375–390, 1999.
- [D’A99] Marcello D’Agostino. Tableau methods for classical propositional logic. In Marcello D’Agostino, Dov M. Gabbay, Reiner Hähnle, and Joachim Possegga, editors, *Handbook of Tableau Methods*, pages 45–123. Kluwer, Dordrecht, 1999.
- [dCBF98] Newton C.A. da Costa, Otávio Bueno, and Steven French. The logic of pragmatic truth. *Journal of Philosophical Logic*, 27:603–620, 1998.
- [D’H01] Isabel D’Hanis. The use of metaphors in scientific development: A logical approach. *Logique et Analyse*, 173–175:215–235, 2001. appeared 2003.
- [D’H02] Isabel D’Hanis. A logical approach to the analysis of metaphors. In Magnani et al. [MNP02], pages 21–37.
- [Hem65] Carl G. Hempel. *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*. The Free Press, New York, 1965.
- [HH05] Ilpo Halonen and Jaakko Hintikka. Toward a theory of the process of explanation. *Synthese*, 143:5–61, 2005.
- [Hin62] Jaakko Hintikka. *Knowledge and Belief. An Introduction to the Logic of the Two Notions*. Cornell University Press, Ithaca, New York, 1962.
- [Hin98] Jaakko Hintikka. What is abduction? The fundamental problem of contemporary epistemology. *Transactions of the Charles S. Peirce Society*, 34:503–533, 1998.
- [Hin99] Jaakko Hintikka. *Inquiry as Inquiry: A Logic of Scientific Discovery*. Kluwer, Dordrecht, 1999.
- [HW07] Leon Horsten and Philip Welch. The undecidability of propositional adaptive logic. *Synthese*, 158:41–60, 2007.
- [Kle52] Stephen Cole Kleene. *Introduction to Metamathematics*. North-Holland, Amsterdam, 1952.
- [Kui00] Theo A. F. Kuipers. *From Instrumentalism to Constructive Realism. On some Relations Between Confirmation, Empirical Progress, and Truth Approximation*, volume 287 of *Synthese Library*. Kluwer, Dordrecht, 2000.
- [Lau77] Larry Laudan. *Progress and its Problems*. University of California Press, Berkeley, 1977.
- [Lev00] Iddo Lev. Preferential systems for plausible non-classical reasoning. Master’s thesis, Department of Computer Science, Tel-Aviv University, 2000. Unpublished M.A. dissertation.

- [Lew82] David Lewis. Logic for equivocators. *Noûs*, 16:431–441, 1982.
- [Mak05] David Makinson. *Bridges from Classical to Nonmonotonic Logic*, volume 5 of *Texts in Computing*. King’s College Publications, London, 2005.
- [MB06] Joke Meheus and Diderik Batens. A formal logic for abductive reasoning. *Logic Journal of the IGPL*, 14:221–236, 2006.
- [MdCC86] Irene Mikenberg, Newton C. A. da Costa, and Rolando Chuaqui. Pragmatic truth and approximation to truth. *Journal of Symbolic Logic*, 51:201–221, 1986.
- [Meh93] Joke Meheus. Adaptive logic in scientific discovery: the case of Clausius. *Logique et Analyse*, 143–144:359–389, 1993. Appeared 1996.
- [Meh99a] Joke Meheus. Clausius’ discovery of the first two laws of thermodynamics. A paradigm of reasoning from inconsistencies. *Philosophica*, 63:89–117, 1999. Appeared 2001.
- [Meh99b] Joke Meheus. Deductive and ampliative adaptive logics as tools in the study of creativity. *Foundations of Science*, 4:325–336, 1999.
- [Meh00] Joke Meheus. An extremely rich paraconsistent logic and the adaptive logic based on it. In Batens et al. [BMPVB00], pages 189–201.
- [Meh01] Joke Meheus. Adaptive logics for question evocation. *Logique et Analyse*, 173–175:135–164, 2001. Appeared 2003.
- [Meh02a] Joke Meheus. Inconsistencies in scientific discovery. Clausius’s remarkable derivation of Carnot’s theorem. In Helge Krach, Geert Vanpaemel, and Pierre Marage, editors, *History of Modern Physics. Acta of the XXth International Congress of History of Science*, pages 143–154. Brepols, Turnhout (Belgium), 2002.
- [Meh02b] Joke Meheus, editor. *Inconsistency in Science*. Kluwer, Dordrecht, 2002.
- [Meh06] Joke Meheus. An adaptive logic based on Jaśkowski’s approach to paraconsistency. *Journal of Philosophical Logic*, 35:539–567, 2006.
- [Meh07] Joke Meheus. Adaptive logics for abduction and the explication of explanation-seeking processes. In Pombo and Gerner [PG07], pages 97–119.
- [Meh10] Joke Meheus. A formal logic for the abduction of singular hypotheses. 2010.
- [MNP02] Lorenzo Magnani, Nancy J. Nersessian, and Claudio Pizzi, editors. *Logical and Computational Aspects of Model-Based Reasoning*. Kluwer, Dordrecht, 2002.

- [MP06] Jacek Malinowski and Andrzej Pietruszczak, editors. *Essays in Logic and Ontology*, volume 91 of *Poznań Studies in the Philosophy of the Sciences and the Humanities*. Rodopi, Amsterdam/New York, 2006.
- [MP07] Joke Meheus and Dagmar Provijn. Abduction through semantic tableaux versus abduction through goal-directed proofs. *Theoria*, 22/3(60):295–304, 2007.
- [MVVDP02] Joke Meheus, Liza Verhoeven, Maarten Van Dyck, and Dagmar Provijn. Ampliative adaptive logics and the foundation of logic-based approaches to abduction. In Magnani et al. [MNP02], pages 39–71.
- [Nas02] Marek Nasieniewski. *Logiki adaptujące sprzeczność (Inconsistency adapting logics)*. Phd thesis, Chair of Logic, N. Copernicus University, Toruń, Poland, 2002.
- [Nas03] Marek Nasieniewski. The axiom of McKinsey-Sobociński K1 in the framework of discussive logics. *Logique et Analyse*, 183–184:315–324, 2003. Appeared 2005.
- [Nas04] Marek Nasieniewski. An adaptive logic based on Jaśkowski’s logic  $D_2$ . *Logique et Analyse*, 185–188:287–304, 2004. Appeared 2005.
- [Nas08] Marek Nasieniewski. *Wprowadzenie do logik adaptacyjnych*. Wydawnictwo Naukowe, Uniwersytetu Mikołaja Kopernika, Toruń, 2008.
- [Ner02] Nancy Nersessian. Inconsistency, generic modeling, and conceptual change in science. In Meheus [Meh02b], pages 197–211.
- [Nor87] John Norton. The logical inconsistency of the old quantum theory of black body radiation. *Philosophy of Science*, 54:327–350, 1987.
- [Nor93] John Norton. A paradox in Newtonian gravitation theory. *PSA 1992*, 2:421–420, 1993.
- [Odi03] Sergei P. Odintsov. ‘Reductio ad absurdum’ and Łukasiewicz modalities. *Logic and Logical Philosophy*, 11/12:149–166, 2003.
- [Odi06] Sergei P. Odintsov. Absurdity as a unary operator. In Malinowski and Pietruszczak [MP06], pages 225–242.
- [Orl99] Ewa Orłowska, editor. *Logic at Work. Essays Dedicated to the Memory of Helena Rasiowa*. Physica Verlag (Springer), Heidelberg, New York, 1999.
- [PG07] Olga Pombo and Alexander Gerner, editors. *Abduction and the Process of Scientific Discovery*. Centro de Filosofia das Ciências da Universidade de Lisboa, Lisboa, 2007.
- [Pop35] Karl R. Popper. *Logik der Forschung*. Verlag von Julius Springer, Wien, 1935. English translation, with new appendices, [Pop59].

- [Pop59] Karl R. Popper. *Logic of Scientific Discovery*. Hutchinson, London, 1959. English translation, with new appendices of [Pop35].
- [Pop73] Karl R. Popper. *Objective Knowledge*. Clarendon, Oxford, 1973.
- [PP75] Witold A. Pogorzelski and Tadeusz Prucnal. The substitution rule for predicate letters in the first-order predicate calculus. *Reports on Mathematical Logic*, 5:77–90, 1975.
- [Pri79] Graham Priest. The logic of paradox. *Journal of Philosophical Logic*, 8:219–241, 1979.
- [Pri87] Graham Priest. *In Contradiction. A Study of the Transconsistent*. Nijhoff, Dordrecht, 1987.
- [Pri91] Graham Priest. Minimally inconsistent **LP**. *Studia Logica*, 50:321–331, 1991.
- [Pri02] Graham Priest. Paraconsistent logic. In D. Gabbay and F. Guenther, editors, *Handbook of Philosophical Logic*, volume 6. Kluwer, Dordrecht, 2 edition, 2002.
- [Pri06] Graham Priest. *In Contradiction. A Study of the Transconsistent*. Oxford University Press, Oxford, 2006. Second expanded edition (first edition 1987).
- [PRN89] Graham Priest, Richard Routley, and Jean Norman, editors. *Paraconsistent Logic. Essays on the Inconsistent*. Philosophia Verlag, München, 1989.
- [Rahar] Shahid Rahman. From games to dialogues and back. Towards a general frame for validity. To appear.
- [Rei38] Hans Reichenbach. *Experience and Prediction*. University of Chicago Press, 1938.
- [Res64] Nicholas Rescher. *Hypothetical Reasoning*. North-Holland, Amsterdam, 1964.
- [Res73] Nicholas Rescher. *The Coherence Theory of Truth*. Clarendon, Oxford, 1973.
- [RK05] Shahid Rahman and Laurent Keiff. On how to be a dialogician. In D. Vanderveken, editor, *Logic, Thought and Action*, volume 2 of *Logic, Epistemology and Unity of Science*, pages 359–408. Springer, Dordrecht, 2005.
- [RM70] Nicholas Rescher and Ruth Manor. On inference from inconsistent premises. *Theory and Decision*, 1:179–217, 1970.
- [Sch60] Kurt Schütte. *Beweistheorie*. Springer, Berlin, 1960.
- [SJ89] Peter K. Schotch and Raymond E. Jennings. On detonating. In Priest et al. [PRN89], pages 306–327.

- [Smi88] Joel Smith. Inconsistency and scientific reasoning. *Studies in History and Philosophy of Science*, 19:429–445, 1988.
- [Smu95] Raymond M. Smullyan. *First Order Logic*. Dover, New York, 1995. Original edition: Springer, 1968.
- [Sus77] Roman Suszko. The Fregean axiom and Polish mathematical logic in the 1920s. *Studia Logica*, 36:377–380, 1977.
- [Urbnt] Rafał Urbaniak. Capturing dynamic conceptual frames. *Logic Journal of IGPL*, in print. doi:10.1093/jigpal/jzp052.
- [Van97] Guido Vanackere. Ambiguity-adaptive logic. *Logique et Analyse*, 159:261–280, 1997. Appeared 1999.
- [VBC0x] Peter Verdée, Diderik Batens, and Kristof De Clercq. Embedding gluts and gaps (and more) in classical logic. Forthcoming, 200x.
- [VDPng] Frederik Van De Putte. Hierarchic adaptive logics. forthcoming.
- [Ver09] Peter Verdée. Adaptive logics using the minimal abnormality strategy are  $\Pi_1^1$ -complex. *Synthese*, 167:93–104, 2009.
- [VH05] Liza Verhoeven and Leon Horsten. On the sense of eating strawberries or on the exclusivity implicature of 'or'. *Studia Logica*, 81:19–24, 2005.
- [VKV03] Bart Van Kerckhove and Guido Vanackere. Vagueness-adaptive logic: A pragmatological approach to Sorites paradoxes. *Studia Logica*, 75:383–411, 2003.
- [VvdWvG08] Peter Verdée and Stephan van der Waart van Gulik. A generic framework for adaptive vague logics. *Studia Logica*, 90:385–405, 2008.
- [vW96] Georg Henrik von Wright. Truth-logics. *Acta Philosophica Fennica*, 60:71–91, 1996.
- [Wei00] Paul Weingartner. Reasons for filtering Classical Logic. In Batens et al. [BMPVB00], pages 315–327.
- [Wiś95] Andrzej Wiśniewski. *The Posing of Questions. Logical Foundations of Erotetic Inferences*. Kluwer, Dordrecht, 1995.
- [Wiś96] Andrzej Wiśniewski. The logic of questions as a theory of erotetic arguments. *Synthese*, 109:1–25, 1996.

### Note on the Index

Bold page numbers refer to the most important occurrence of the word or phrase, usually a definition. Italic page numbers indicate an occurrence in a footnote. If you consult the index while reading the book for the first time, it is advisable to refer to refer to pages preceding the one you are reading.

The reference section has not been indexed and not all proper names occur in the index.

Most phrases are listed under their main substantive. So to find the definition of a local premise, look at the subentry “local” under the entry “premise”. An exception to this is that most properties of logics are not listed under the entry “logic” but under the substantive that names them. So for “compact logic” look under the entry “compactness”.



- strength, 291
- ampliative, 11, 63
- combined, 86, 191–240
- corrective, 11, 63, 269–302
- heuristics, 121
- inconsistency-adaptive, 39
  - strength, 291
- loose specification, 7–12
- no intervention required, 10
- no static proofs, 183
- qualitative approach, 17
- simple, 86
- Add (Addition), 14
- adequacy, 157
  - Blindness, 194
  - Minimal Abnormality, 158
  - Normal Selections, 196
  - Reliability, 157
  - Simple, 192
- Adjunction, 51
- AL**, 111
- AL<sup>b</sup>**, 194
- algorithm, 353
- Aliseda, Atocha, 107, 202
- AL<sup>n</sup>**, 195
- AL<sup>m</sup>**, 123
- AL<sup>r</sup>**, 123
- AL<sup>s</sup>**, 192
- AN**, 245
- annotated proof, 22, 127
- AN<sup>s</sup>**, 255
- argumentation, 291
- Arruda, Ayda, 242
- atom, 80
  - functional –, 80
- Avron, Arnon, 164, 298
- axiom schema, 22, 22
- Beirlaen, Mathieu, 71, 82, 95
- block, 140–148
  - analysis, 141
  - proof, 141
  - Dab*-complete, 147
- branch (of a tableau), 315
- Cantor, Georg, 37
- Carnap, Rudolf, 17, 69
- Carnielli, Walter, 201
- Cautious Cut, 377
- Cautious cut, 167
- Cautious Monotonicity, 167, 377
- CG<sup>m</sup>**, 91
- CG<sup>r</sup>**, 91
- characteristic, *see* semantics
- choice set, 57, 122, 213
  - minimal, 57, 122
- CIL<sup>m</sup>**, 91
- CIL<sup>r</sup>**, 91
- Ciuciura, Janusz, 245
- CL**, 31–35
  - compact, 371
  - completeness, 35
  - Deduction Theorem, 32
    - Generalized, 32
  - extended to  $\mathcal{L}_S$ , 33
  - finite proof property, 371
  - full positive –, *see* **CL<sup>+</sup>**
  - monotonic, 370
  - reflexive, 370
  - soundness, 33
  - static proofs, 370
  - transitive, 371
- CL<sup>+</sup>**, 179
- CL $\emptyset$** , 289
- CL $\emptyset$ I**, 289
- CLA**, 285
- CLA<sup>m</sup>**, 287
- CLaN**, 270
- CLA<sup>r</sup>**, 287
- class
  - equivalence, 243
- classical disjunction
  - in *Dab*-formulas, 139
- classical symbols, 19
  - convention, 116
  - convention on use, 115
  - intertwined, 116
  - superimposed, 116
- CLC**, 273
- CLI**, 284
- CLI<sup>m</sup>**, 91, 287
- CLI<sup>r</sup>**, 91, 287
- CLuN**
  - axiomatization, 42
  - completeness, 43
  - deterministic semantics, 41
  - Generalized Deduction Theorem, 43
  - indeterministic semantics, 40
  - model, 41

- consistent  $\neg$ , 44
- soundness, 43
- tableaux, 315
- CLuN**<sup>m</sup>, 58, 115
- CLuN**<sub>1</sub><sup>m</sup>, 257
- CLuN**<sub>c</sub><sup>m</sup>, 260
- CLuN**<sub>p</sub><sup>m</sup>, 266
- CLuN**<sub>p</sub><sup>r</sup>, 266
- CLuN**<sup>r</sup>, 58
- CLuN**<sub>1</sub><sup>r</sup>, 263
- CLuN**<sub>c</sub><sup>r</sup>, 263
- CLuNs**, 242
- CLuNs**<sup>f,m</sup>, 247
- CLuNs**<sup>f,r</sup>, 247
- CLuNs**<sup>m</sup>, 250
- CLuNs**<sup>m'</sup> (a flip-flop logic), 374
- CLuNs**<sup>r</sup>, 250
- CLuNv**, 242
- CLuNv**<sup>m</sup>, 251
- CLuNv**<sup>r</sup>, 251
- $Cn_{\mathbf{L}}^{\mathcal{C}}(\Gamma)$ , *see* consequence set
- C**<sub>n</sub>, 244
- C**<sub>n</sub><sup>m</sup>, 252
- C**<sub>n</sub><sup>r</sup>, 252
- COM**, 305
- Compactness, 25
  - and adaptive logics, 188
  - Relative  $\neg$ 
    - and adaptive logics, 188
- COMPAT**, 304
- compatibility
  - classical, 304–305
  - joint, 305
- completeness, 30
  - absolute, 30
  - negation-, 40
  - of **CLuN**, 43
  - of **CL**, 35
  - weak, 35
- complexity
  - computational, 312
  - of a contradiction, 225
- complexity of a formula, 35
- condition
  - of a proof line, 127
  - of a rule, 126
- conditions lemma, 120
- Coniglio, Marcelo, 201
- conjecture, 104–106
- connected inconsistencies, 53–54
- consequence, 7
  - default-assumption, 164
- consequence set, 21
  - $Cn_{\mathbf{L}}(\Gamma)$ , 114
- consistency requirement, 40
- consistent, **39**
  - logic, *see* logic
  - model, 44
- consistentist, 37
- correct line, 23, 127
- criterion
  - $\neg$  flip-flop, 299
  - tuaf, 294
- CUC, 229
- Cumulative Indifference, 168
- Cumulative Monotonicity, 167, 377
- Cumulative Transitivity, 167, 377
- Cut
  - Cautious, 167, 377
- da Costa, Newton, 225, 244, 252, 304
- Dab*-consequence
  - minimal, 59, **124**
- Dab*-conservative, 166
- Dab*-formula, 49, **113**
  - minimal  $\neg$ , 54, **122**
- Dab*<sup>(i)</sup>-formula, 88
- decidability, 13, 317
- deduction
  - standard of  $\neg$ , 115
- Deduction Theorem, 32
  - Generalized, 32
- deductively closed, 34
- defeasible reasoning, 14
- definition (explicit  $\neg$ ), 22
- degree
  - of a condition, 89
  - of an abnormality, 87, 91
- degree of an abnormality, 87
- denumerable alphabet, 19
- derivability
  - at a stage, 59, **122**
  - final, 59, **123**
  - establishing, 123
- derivability relation, 21
  - $\mathcal{R}$ -derivable, 24, 128
- detachable implication, 43
- deterministic semantics, 40
- dialetheist, 37
- dialogue

- calling premises, 135, 138
- many turns, 134, 137
- POP, 135, 138
- stability, 133, 137
- discovery recipe, 110
- Disjunctive Syllogism, 14
- dynamic proof, 126–140
- dynamics of reasoning processes
  - external, 12
  - internal, 12
  - internal only, 12, 14
- EFQ, *see* Ex Falso Quodlibet
- Em** (empty logic), 23
- equivalent
  - models, 44
  - premise sets, 177
  - semantic systems, 42
- erotetic logic, 16
- evocation
  - question –, 16
- Ex Falso Quodlibet, 14
- existential closure, 45
- expectancies, 16
- explanation
  - the process of –, 15
- extension
  - of a stage of a proof, 23, 128
- false
  - in a model, *see* model  $M$  falsifies  $A$
- falsification, 73
  - joint –, 73
- falsify, *see* model  $M$  falsifies  $A$
- finite proof property, 371
- Fixed Point, 26, 376, 377
- flip-flop criterion, 299
- flip-flop logic, 9, 102, 249, 292–302
- form
  - characteristic logical –, 164
- formal logic, 28
- formal problem-solving process, 11, 200, 201, 235, 240, 328
- formula
  - ‘infinite’, 173
  - primitive, 42
  - purely functional, 75
- formula-preferential, 164
- Formulation Independence, 179
- Frege, Gottlob, 37
- fusion
  - of adaptive logics, 237–240
- Gödel number, 63
- gap
  - negation –, 270
- generalization
  - restrictions, 70
- $\mathbf{G}_{(i)}^r$ , 87
- glut
  - negation –, 270
- $\mathbf{G}^m$ 
  - compared to  $\mathbf{IL}^m$ , 85
- $\mathbf{G}^m$ , 84
- $\mathbf{G}^r$ , 84
  - compared to  $\mathbf{IL}^r$ , 85
- Halonen, Ilpo, 15
- heuristics, 121
- $\mathbf{HG}^m$ , 91
- $\mathbf{HG}^r$ , 88
- $\mathbf{HIL}^m$ , 91
- $\mathbf{HIL}^r$ , 91
- Hintikka, Jaakko, 15, 16, 202, 304, 326
- $\mathbf{HLI}^m$ , 91
- $\mathbf{HLI}^r$ , 91
- Horsten, Leon, 312
- i*-safe, 211
- Idempotence, 26, 376, 377
- identical to, 177
- iff, 8
- $\mathbf{IL}^m$ 
  - compared to  $\mathbf{LI}^m$ , 85
- $\mathbf{IL}^r$ 
  - compared to  $\mathbf{LI}^r$ , 85
- Immunity, 166
- implication
  - detachable, 43
- inconsistency-adaptive, 39
- inconsistent set, 39
- inconsistent theory
  - paradigm case, 38
- Independence
  - Formulation, 179
- indeterministic semantics, 40
- Indifference
  - Cumulative, 168
  - importance, 168–170

- inductive generalization, 16
- insight
  - growing – in the premises, 141
- instruction, 315, 353
  - conditional, 353
- Jaśkowski, Stanisław, 245, 254
- Jennings, Raymond E., 179
- K**, 99
- $\mathbf{K}^m$ , 100, 220
- $\mathbf{K}^r$ , 100, 220
- L**-deductively closed in  $\mathcal{L}$ , 34
- language schema, 19
- Laudan, Larry, 200
- lemma
  - conditions –, 120
- letter, 283
- Lev, Iddo, 164
- Lewis, David, 291
- $\mathbf{LI}_{(i)}^r$ , 91
- $\mathbf{LI}^m$ , 74
- line
  - correct –, 23, 127
  - dynamic proof, 119, 127
  - static proof, 22
- $\mathbf{LI}^r$ , 72, 77
- list, 22
- $\mathcal{L}_\circ$ , 324
- logic, 7
  - adaptive, *see* adaptive logic
  - ambiguity –
    - strength, 291
  - compact, 25, 371
  - consistent, 119
  - decidable, 315
  - defined by  $\mathcal{R}$  and  $M$ , 129
  - erotetic, 16
  - extensional, 357
  - finite proof property, 371
  - fixed point, 26
  - flip-flop, *see* flip-flop logic
  - formal, 28, 163
  - idempotent, 26
  - lower limit, 9, **111**
    - maximality, 182, 183
    - pivotal role, 183
  - monotonic, 26, 370
  - non-monotonic, 15
  - paraconsistent, 8, **40**
    - strength, 291
  - reflexive, 25, 370
  - regular, 40
  - Tarski –, **26**
  - transitive, 25, 371
  - trivial, *see* **Tr**
  - underlying – of a theory, 11
  - uniform, 27
  - upper limit, 9, **114**
- logical truth, **7**
- lower limit logic, 9
- LP**, 244
- $\mathbf{LP}^{f,m}$ , 251
- $\mathbf{LP}^{f,r}$ , 251
- $\mathbf{LP}_m$ , 154
- $\mathbf{LP}^m$ , 251
- $\mathbf{LP}^r$ , 251
- Lukasiewicz, Jan, 220
- Lycke, Hans, 196
- $M$  is a model of  $\Gamma$ , 30
- Makinson, David, 164
- Manor, Ruth, 14, 117, 127, 179, 307–310, 360
- marking definition
  - as opposed to rules, 127
  - Blindness, **194**
  - Counting, **199**
  - for  $*$ , 230
  - for CUCs, 231
  - Minimal Abnormality, 57, **122**
    - combined logics, 212, 214
  - Reliability, 54, **122**
    - combined logics, 90, 93, 101, 209
    - sequential superpositions, 209
  - Simple, **192**
- maximal consistent subset, 178
- maximally **L**-non-trivial in  $\mathcal{L}$ , 34
- maximally non-trivial, 34
- meaning
  - of logical symbols, 111
- Meheus, Joke, 3, 4, 202, 245, 254, 255, 304, 314, 315
- metalanguage
  - classical, 118
  - classical throughout this book, 31
  - conventions, 20
- metametalanguage (conventions), 21
- $\mathcal{M}_\Gamma^{\mathbf{AL}}$ , 185

- $\mathcal{M}_\Gamma^{\text{LLL}}$ , 124
- $\mathcal{M}_\Gamma^m$ , 124
- $\mathcal{M}_\Gamma^r$ , 124
- $\mathcal{M}_\Gamma^{\text{ULL}}$ , 124
- Mill, John Stuart, 70
- minimal member of a set of sets, 152
- minimal set of rules, 376
- model, 30
  - consistent, 44
  - equivalent models, 44
  - false in a  $\neg$ , 30
  - $\mathcal{L}$ -equivalent, 44
  - minimal abnormal, 60
  - minimally abnormal, **124**, **192**
  - reliable, 59, **124**
  - trivial, 118
  - true in a  $\neg$ , *see* model  $M$  verifies  $A$
- model  $M$  falsifies  $A$ , 30
- model  $M$  verifies  $A$ , 30
  - CLuN**-models, 41
  - CL**-models, 33
- Modus Ponens, 31
- monotonic logic, 26, 370
- Monotonicity
  - Cautious, 167, 377
  - Cumulative, 167, 377
- MP (Modus Ponens), 31
- Nasieniewski, Marek, 254
- negation-completeness, 40
- Newton, Isaac, 37
- $N_i$ , 22
- non-monotonic, *see* monotonic
- non-monotonic reasoning process, 12
- $\Omega$ , 87, **115**, 201
- $\Omega$ -closure, 122
- $\omega$ -complete, 34
- Odintsov, Sergei, 4, 42, *220*
- $\wp(D^r)$ , *see* power set
- $\Phi(\Gamma)$ , 124
  - uncountable, 159, 161
- $\Phi_s(\Gamma)$ , 57, **122**
- paraconsistent
  - maximally  $\neg$ , 242
  - strictly  $\neg$ , 242
- partition, *208*
- path
  - of a formula, 22
  - of a line, 22
- PCLuN** $_i^m$ , 226
- PCLuN** $_i^r$ , 226
- PCLuN** $^m$ , 226
- PCLuN** $^r$ , 226
- PCNF, *see* prenex conjunctive normal form
- P** $_i^m$ , 220
- P** $_i^r$ , 220
- plausibility
  - degrees of  $\neg$ , 219
  - paraconsistent case, 221
  - paraconsistent negation, 220, 223
- P** $^m$ , 221
- Popper, Karl Raimund, 70, 87, 97
- positive **CL**, 43
- positive test, 13, 28, 354
- power set, 32
- PP** $^m$ , 222
- PP** $^r$ , 222
- P** $^r$ , 221
- Prem (premise rule), 23, 48, **120**, 127, **208**
- premise, 7
  - local, 22
- premise set
  - abnormal, 44, **125**
  - equivalence of, 177
  - normal, 44, **125**
- prenex conjunctive normal form, 245
- Priest, Graham, 2, 37, 63, 118, 119, 154, 241, 244, 263, 264, 266, 351, 352
- primitive formula, 42
- procedure, 315, 353
  - deterministic, 353
  - mechanical, 353
  - stopped, 353
- process
  - formal problem-solving  $\neg$ , *see* formal problem-solving process
- proof, 355
  - L** has dynamic proofs, 129
  - L** has static proofs, 24
  - annotated, 22
  - combined, 207
  - condition, 127
  - direct – theory, 127
  - finite and static, 376

- infinite, 123
- informative step, 143
- line of a dynamic –, 127
- line of a static –, 22
- robust, 80
- stable with respect to a line, 123
- static, 370
- static  $\mathcal{R}$ -proof from  $\Gamma$ , 23, 128
- static  $\mathcal{R}$ -proof of  $A$  from  $\Gamma$ , 23
- static  $\mathcal{R}$ -proof of  $A:\Delta$  from  $\Gamma$ , 128
- strong sense, 355
- weak sense, 355
- proof invariance, 176
- proof stage, 23, 128
- prospective presupposition, 16
- Pseudo-Compactness, 188
- pseudo-constant, 20
- pseudo-language schema, 20
- Quasi-Compactness, 188
- $\mathcal{R}$ -stage from  $\Gamma$ , 23, 128
- $R\forall$ , 31
- $R\exists$ , 32
- RC, 49
- RD, 121
- reasoning
  - defeasible, *see* defeasible reasoning
- Reassurance
  - combined logics, 231–233
  - standard format, 154–156
  - Strong –
    - combined logics, 231, 233
    - standard format, 154–156
- recursive
  - convention, 15
- recursive set, 13
- reduction
  - ALi**-reduction, 231
- Redundance, 165, 377
- redundant set of rules, 376
- reflexive logic, 25, 370
- Reflexivity, 167, 377
- Reichenbach, Hans, 70, 96
- relettering, 246
- Replacement of Equivalentents, 43
- Replacement of Identicals, 43
- Rescher, Nicholas, 14, 117, 127, 179, 307–310, 360
- research
  - guiding –, 77
- $R_l$ , 22
- Robberechts, Pieter, 71
- RoE, 43
- RoI, 43
- Routley, Richard, 37
- RU, 49
- RU\*, 90, 230
- rule, 126
  - application
    - rule, 127
    - S-rule, 22
  - finitary
    - rule, 127
    - S-rule, 22
  - generic, 49
  - minimal set, 376
  - redundant set, 376
  - restricted, 22, 127
  - S-rule, 22
    - convention, 23
    - vs.* application, 123
- S-rule, *see* rule
- Schütte, Kurt, 242
- Schotch, Peter K., 179
- scope (of a logical symbol), 43
- second order, 29
- semantic consequence, 30
- semantics
  - characteristic, 30
  - clausal, 292
  - deterministic, 40
  - dynamic, 140–148
  - recursive, 298
  - sequential superpositions, 206
  - tabular, 292
  - tuaf, 292
- semi-decidable, 13, 28
- semi-recursive, 13
  - convention, 15
- semi-recursive set, 28
- Set Theory
  - Frege's –, 366
- SG<sup>m</sup>**, 94
- SG<sup>r</sup>**, 94
- SIL<sup>m</sup>**, 94
- SIL<sup>r</sup>**, 94
- Simplicfication, 142

- SLI<sup>m</sup>**, 94
- SLI<sup>r</sup>**, 94
- soundness, 30
  - of **CLuN**, 43
  - of **CL**, 33
- stage
  - of a proof, 23, 128
- stage of a branch, 315
- stage of a proof, 48
- Standard Format, 109–189
- standard of deduction, 10, 115
  - absolute, 10
  - pragmatic, 11
- static proofs, 21–30, 63–67, 370
- Straßer, Christian, 150, 176, 178, 198
- strategy
  - and proof at a stage, 192–193
  - Blindness, 194
  - Counting, 197
  - Flip-flop, 196–197, 306
  - Minimal Abnormality, 55–58
  - Normal Selections, 194–196
  - Reliability, 52–55
  - Simple, 191–194
- Strong
  - consequence relation, 178
- stronger than, 177
- structural logic, 26
- sub( $\Gamma$ ), 45
- sub( $A$ ), 45
- superposition
  - sequential, 93, 205–229
- symbol
  - non-logical –
  - indexed, 283
- tableau, 314
  - and relevance, 318
  - closed, 315
  - labelling, 317
  - open, 315
- test
  - negative, 15
- theorem
  - of a logic, 21
  - of a theory, 38
  - of an adaptive logic, 124
- theory, 11
  - adaptive, 169
  - different formulations, 177
- T<sup>r'</sup>** (a flip-flop logic), 373
- Tr**, 23
- Transitivity, 25, 371
  - Cumulative, 167, 377
- Triv**, 114
- trivial
  - logic, *see* **Tr**
  - model, 118
  - set of formulas, 8, **34**
  - L**-trivial in  $\mathcal{L}$ , 34
  - ULL**-trivial, 114
- true
  - in a model, *see* model  $M$  verifies  $A$
- truth in a model, *see* model  $M$  verifies  $A$
- tuaf criterion, 294
- two-valued semantics, 30
- $U(\Gamma)$ , 59, **124**
- UCL**, 82
- Uniformity
  - Propositional, 27
  - Punctual, 162–164
  - relative notion, 27
- upper limit logic, 9
- $U_s(\Gamma)$ , 54
- validity, 30
- valuation, 30, 33, 40
- Van De Putte, Frederik, 71, 174, 196, 233, 233, 236
- Vanackere, Guido, 283
- Vasil'ev, Nikolaj Aleksandrovich, 242
- Verdée, Peter, 176, 205, 264–266, 312, 313
- verify, *see* model  $M$  verifies  $A$
- von Wright, Georg Henrik, 294
- Weak
  - consequence relation, 178
- Weak Consequence, 14
- weaker than, 177
- Weingartner, Paul, 245
- Welch, Philipp, 312
- width
  - logical, 87
- Wiśniewski, Andrzej, 4, 16, 23, 105
- $\mathcal{W}_s$ , 64

