

# Publication list of Marc Bezem

## Journal articles

- [1] M.A. Bezem. Isomorphisms between  $\text{HEO}$  and  $\text{HRO}^E$ ,  $\text{ECF}$  and  $\text{ICF}^E$ . *Journal of Symbolic Logic* 50:359–371, 1985.
- [2] M.A. Bezem. Strongly majorizable functionals of finite type: a model for bar recursion containing discontinuous functionals. *Journal of Symbolic Logic* 50:652–660, 1985.
- [3] M.A. Bezem. Strong normalization of bar recursive terms without using infinite terms. *Archive for Mathematical Logic* 25:175–181, 1985.
- [4] M.A. Bezem and J. van Leeuwen. On the complexity of logarithmic decompositions. *Information Processing Letters* 6(26):321–324, 1988.
- [5] M.A. Bezem. Equivalence of bar recursors in the theory of functionals of finite type. *Archive for Mathematical Logic*, 27:149–160, 1988.
- [6] M.A. Bezem. Compact and majorizable functionals of finite type. *Journal of Symbolic Logic* 54:271–280, 1989.
- [7] M.A. Bezem. Completeness of resolution revisited. *Theoretical Computer Science* 74:227–237, 1990.
- [8] R. Bagai, M.A. Bezem, and M.H. van Emden. On downward closure ordinals of logic programs. *Fundamenta Informaticae* XIII:67–83, 1990.
- [9] K.R. Apt and M.A. Bezem. Acyclic programs. *New Generation Computing* 9:335–363, 1991.
- [10] M.A. Bezem. Semantics and consistency of rule-based expert systems. *Journal of Logic and Computation*, 1(4):477–495, 1991.
- [11] M.A. Bezem and A.J.C. Hurkens. Yet another equivalent of the Axiom of Choice, 1992. Solved problem, Problem 10245, *American Mathematical Monthly* 99(7):675 (solution in 101(8):797–798).
- [12] W. Veldman and M.A. Bezem. Ramsey’s theorem and the pigeonhole principle in intuitionistic mathematics. *Journal of the London Mathematical Society (2)* 47:193–211, 1993.

- [13] M.A. Bezem. Strong termination of logic programs. *Journal of Logic Programming* 15(1&2):79–97, 1993
- [14] M.A. Bezem and J.F. Groote. A correctness proof of a one-bit sliding window protocol. *British Computer Journal* 37(4):289–307, 1994. Corrigendum in *British Computer Journal* 37(7):651.
- [15] M.A. Bezem and J. Keuzenkamp. Undecidable goals for completed acyclic programs. *New Generation Computing* 12:209–213, 1994.
- [16] E. Barendsen and M.A. Bezem. Polymorphic extensions of simple type structures, with an application to a bar recursive minimization. *Annals of Pure and Applied Logic* 79(3):221–280, 1996.
- [17] M.A. Bezem and J. Springintveld. A simple proof of the undecidability of inhabitation in  $\lambda P$ . *Journal of Functional Programming* 6(5):1–5, September 1996.
- [18] M.A. Bezem, R. Bol and J.F. Groote. Formalizing process algebraic verifications in the Calculus of Constructions. *Formal Aspects of Computing* 9:1–48, 1997.
- [19] A. Ponse and M.A. Bezem. Two finite specifications of a queue. *Theoretical Computer Science*, 177(2):487–507, 1997.
- [20] S. Berardi, M.A. Bezem and T. Coquand. On the computational content of the Axiom of Choice. *Journal of Symbolic Logic* 63(2):600–622, 1998.
- [21] M.A. Bezem, J.W. Klop and V. van Oostrom. Diagram techniques for confluence. *Information and Computation* 141(2):172–204, 1998.
- [22] M.A. Bezem and T. Coquand. Newman’s Lemma – a Case Study in Proof Automation and Geometric Logic. In Y. Gurevich, editor, *The Logic in Computer Science Column*, *Bulletin of the European Association for Theoretical Computer Science* 79:86–100, February 2003. Also in G. Paun, G. Rozenberg and A. Salomaa, editors, *Current trends in Theoretical Computer Science*, Volume 2:267–282, World Scientific, Singapore, 2004.
- [23] M.A. Bezem, D. Hendriks and H. de Nivelle. Automated proof construction in type theory using resolution. *Journal of Automated Reasoning* 29(3–4):253–275, 2003.
- [24] T. Langholm and M.A. Bezem. A descriptive characterization of even linear languages. *Grammars* 6(3):169–181, 2003.

- [25] M.A. Bezem, C. Sloper, T. Langholm. Black box and white box identification of Formal Languages using Testsets. *Grammars* 7:111–123, 2004.
- [26] M.A. Bezem and D. Hendriks. On the mechanization of the proof of Hessenberg’s Theorem in Coherent Logic. *Journal of Automated Reasoning* 40(1):61–85, 2008.
- [27] M.A. Bezem, R. Nieuwenhuis and E. Rodríguez. Exponential behaviour of the Butkovic-Zimmermann algorithm for solving two-sided linear systems in max-algebra. *Discrete Applied Mathematics* 156:3506–3509, 2008.
- [28] M. Walicki, M.A. Bezem and W. Szajkenig. Developing Bounded Reasoning. *Journal of Logic, Language and Information* 18:97–129, 2009.
- [29] J.R. Fisher and M.A. Bezem. Skolem Machines. *Fundamenta Informaticae* 91(1):79–103, 2009.
- [30] M.A. Bezem, R. Nieuwenhuis and E. Rodríguez. Hard problems in max-algebra, control theory, hypergraphs and other areas. *Information Processing Letters* 110(4):133–138, 2010.
- [31] M.A. Bezem. Euclid’s Lemma Revisited. *NORMAT* 58(4):184, 2010.
- [32] M.A. Bezem, C. Grabmayer and M. Walicki. Expressive power of digraph solvability. *Annals of Pure and Applied Logic* 163(3):200–213, 2012.
- [33] M.A. Bezem, K. Nakata, and T. Uustalu. On streams that are finitely red. *Logical Methods in Computer Science* 8(4:4): 1–20, 2012.
- [34] M.A. Bezem, D. Hovland and H.A. Truong. A Type System for Counting Instances of Software Components. *Theoretical Computer Science* 458:29–48, 2012.
- [35] M.A. Bezem and T. Coquand. A Kripke Model for Simplicial Sets. *Theoretical Computer Science* 574: 86–91 (2015).
- [36] R. Asin, M.A. Bezem and R. Nieuwenhuis. *Improving IntSat by expressing Disjunctions of Bounds as Linear Constraints*. AI Communications 29(1): 205–209 (2015).

- [37] M.A. Bezem, U. Buchholtz and T. Coquand. Syntactic Forcing Models for Coherent Logic. *Indagationes Mathematicae* 29(6): 1441–1464, 2018. <https://doi.org/10.1016/j.indag.2018.06.004>
- [38] M.A. Bezem, T. Coquand and S. Huber. The Univalence Axiom in Cubical Sets. *Journal of Automated Reasoning* 63: 159–171, 2019. <https://doi.org/10.1007/s10817-018-9472-6>
- [39] M.A. Bezem and T. Coquand. Skolem’s Theorem in Coherent Logic. *Fundamenta Informaticae* 170(1–3): 1–14, 2019. <https://doi.org/10.3233/FI-2019-1853>
- [40] M.A. Bezem, U. Buchholtz, D. Grayson and M. Shulman. Construction of the circle in UniMath. *Journal of Pure and Applied Algebra*, 225(10), October 2021. <https://doi.org/10.1016/j.jpaa.2021.106687>.
- [41] M.A. Bezem, T. Coquand, P. Dybjer, and M. Escardó. On generalized algebraic theories and categories with families. *Mathematical Structures in Computer Science*, 2021. <https://doi.org/10.1017/S0960129521000268>.
- [42] M.A. Bezem and T. Coquand. Loop-checking and the uniform word problem for join-semilattices with an inflationary endomorphism. *Theoretical Computer Science*. Available online: <https://doi.org/10.1016/j.tcs.2022.01.017>

## Contributed papers to conferences

- [43] M.A. Bezem. Consistency of rule-based expert systems. In E. Lusk and R. Overbeek, editors, *Proceedings of the 9-th Conference on Automated Deduction*, number 310 in Lecture Notes in Computer Science, pages–161, Argonne, 1988. Springer, Berlin.
- [44] M.A. Bezem. Characterizing termination of logic programs with level mappings. In E. Lusk and R. Overbeek, editors, *Proceedings of the North American Conference on Logic Programming*, pages 69–80, Cleveland, 1989. MIT Press, Cambridge MA.
- [45] K.R. Apt and M.A. Bezem. Acyclic programs (extended abstract). In D.H.D. Warren and P. Szeredi, editors, *Proceedings of the 7-th International Conference on Logic Programming*, pages 617–633, Jerusalem, 1990. MIT Press, Cambridge MA. Full version appeared in *New Generation Computing*.

- [46] M.A. Bezem and W. Buchholz. Bar recursive encodings of tree ordinals. In H.P. Barendregt, M.A. Bezem, and J.W. Klop, editors, *Dirk van Dalen Festschrift*, pages 41–56. Department of Philosophy, Utrecht University, 1993.
- [47] M.A. Bezem and J.F. Groote. Invariants in process algebra with data. In B. Jonsson and J. Parrow, editors, *Proceedings CONCUR94*, number 836 in Lecture Notes in Computer Science, pages 401–416. Springer-Verlag, Berlin, 1994.
- [48] S. Berardi, M.A. Bezem, and T. Coquand. A realizability interpretation of the negative translation of the Axiom of Choice. In M. Dezani-Ciancaglini and G. Plotkin, editors, *Proceedings TLCA95*, number 902 in Lecture Notes in Computer Science, pages 47–62. Springer-Verlag, Berlin, April 1995.
- [49] M.A. Bezem and M. Keijzer. Generalizing Hamming distance to finite sets. In D. Patterson e.a., editors, *Proceedings PACES/SPICIS'97*, pages 148–153, Nanyang Technological University, Singapore, Februari 1997.
- [50] K.R. Apt and M.A. Bezem. Formulas as Programs. In K.R. Apt, V. Marek, M. Truszczyński and D.S. Warren, editors, *The Logic Programming Paradigm: a 25 Years Perspective*, pages 75–107, Springer, 1999.
- [51] M.A. Bezem. Extensionality of simply typed logic programs. In D. de Schreye, editor, *Proceedings ICLP99*, pages 395–410, Las Cruces, December 1999.
- [52] M.A. Bezem, D. Hendriks and H. de Nivelle. Automated proof construction in type theory using resolution. In D. McAllester, editor, *Proceedings CADE-17*, LNCS 1831, pages 148–163. Springer-Verlag, Berlin, June 2000.
- [53] M.A. Bezem. An improved extensionality criterion for higher-order logic programs. In L. Fribourg, editor, *Proceedings CSL'01*, LNCS 2142, pages 203–216. Springer-Verlag, Berlin, September 2001.
- [54] M.A. Bezem. Hoapata programs are monotonic. In T. Uustalu and J. Vain, editors, *Proceedings NWPT'02*, Institute of Cybernetics at TTU, Tallinn, pages 18–20, 2002.
- [55] M.A. Bezem and H.A. Truong. A type system for the safe instantiation of components. In A. Brogi, J.-M. Jacquet and E. Pimentel, editors,

- Proceedings Foclasa'03*, Marseille, Electronic Notes in Theoretical Computer Science 97, pages 197–217, 2004.
- [56] M.A. Bezem and H.A. Truong. Counting instances of software components. In D. Galmiche e.a., editors, *Proceedings of the ICALP-LICS 2004 Workshop on Logics for Resources, Processes and Programs*, Turku, Finland, pages 55–72, 2004.
- [57] H.A. Truong and M.A. Bezem. Finding resource bounds in the presence of explicit deallocation. In D.V. Hung and M. Wirsing, editors, *Proceedings ICTAC 2005*, LNCS 3722, pages 227–241, Springer-Verlag, 2005.
- [58] M.A. Bezem. *Disproving Distributivity in Lattices Using Geometric Logic*. In W. Ahrendt, P. Baumgartner and H. de Nivelle, editors, *Proceedings of the CADE workshop DISPROVING*, Tallinn, Estonia, 22 July 2005, pages 24–31.
- [59] M.A. Bezem and T. Coquand. Automating Coherent Logic. In G. Sutcliffe and A. Voronkov, editors, *Proceedings LPAR-12*, LNCS 3835, pages 246–260, Springer-Verlag, Berlin, 2005.
- [60] M.A. Bezem. On the Undecidability of Coherent Logic. In A. Middeldorp e.a., editors, *Processes, Terms and Cycles: Steps on the Road to Infinity*, LNCS 3838, pages 6–13, Springer-Verlag, Berlin, 2005.
- [61] M. Walicki, M.A. Bezem and W. Szaikenig. *A Strongly Complete Logic of Dense Time Intervals*. In T. Ågotnes and N. Alechina, editors, *Proceedings of the Workshop on Logics for Resource- Bounded Agents of the 18th European School in Logic, Language and Information (ESSLI 2006)*, pages 124–135, Malaga, August 2006.
- [62] M.A. Bezem and D. Hendriks. On the mechanization of the proof of Hessenberg’s Theorem. In F. Botana and E. Roanes-Lozano, editors, *Proceedings the Sixth International Workshop on Automated Deduction in Geometry*, pages 160-181, Universidad de Vigo, September 2006.
- [63] J.R. Fisher and M.A. Bezem. Query Completeness of Skolem Machine computations. In J. Durand-Lose and M. Margenstern, editors, *Proceedings MCU'07*, LNCS 4664, pages 182–192, Springer-Verlag, Berlin, 2007.

- [64] J.R. Fisher and M.A. Bezem. Skolem Machines and Geometric Logic. In C.B. Jones, Z. Liu and J. Woodcock, editors, *Proceedings ICTAC'07*, LNCS 4711, pages 201–215, Springer-Verlag, Berlin, 2007.
- [65] M.A. Bezem, T. Langholm and M. Walicki. Completeness and Decidability in Sequence Logic. In N. Dershowitz and A. Voronkov, editors, *Proceedings LPAR-14*, LNAI 4790, pages 123–137, Springer-Verlag, Berlin, 2007.
- [66] M.A. Bezem, R. Nieuwenhuis and E. Rodríguez. The Max-Atom Problem and its Relevance. In I. Cervesato, H. Veith and A. Voronkov, editors, *Proceedings LPAR-15*, LNAI 5330, pages 47–62, Springer-Verlag, Berlin, 2008.
- [67] A. Polonsky and M.A. Bezem. Proof Objects for Logical Translations. In H. Herbelin, editor, *Proceedings of the 1<sup>st</sup> Coq Workshop*, TUM-I0919, pages 49–60, Technical University Munich, 2009.
- [68] K. Nakata, T. Uustalu and M.A. Bezem. A Proof Pearl with the Fan Theorem and Bar Induction: Walking through Infinite Trees with Mixed Induction and Coinduction. *Proceedings APLAS'11*, LNCS 7078, pages 353–368, Springer-Verlag, Berlin 2011.
- [69] B.-H Tvedt and M.A. Bezem. Automated Scheduling in the Oil Industry. *Proceedings ICAI'12*.
- [70] M.A. Bezem, T. Coquand and S. Huber. A Model of Type Theory in Cubical Sets. *Proceedings TYPES 2013*, Leibniz International Proceedings in Informatics 26, ISBN 978-3-939897-72-9, pp. 107–128, 2014.
- [71] S. Stojanović, J. Narboux, M.A. Bezem, and P. Janičić. A Vernacular for Coherent Logic. In: J. Davenport, A. Sexton, P. Sojka and J. Urban, editors, *Proceedings Conferences on Intelligent Computer Mathematics (CICM)*, LNCS 8543, pp. 388–403, 2014.
- [72] M.A. Bezem, T. Coquand and E. Parmann. Non-Constructivity in Kan Simplicial Sets. *Proceedings TLCA 2015*, Leibniz International Proceedings in Informatics 38, ISBN 978-3-939897-87-3, pp. 92–106, 2015.
- [73] M.A. Bezem, T. Coquand, E. Parmann and K. Nakata. Realizability at work: separating two constructive notions of finiteness. *Proceedings TYPES 2016*, paper 6, Leibniz International Proceedings in Informatics 97, ISBN 978-3-95977-065-1, 2018.

- [74] R. Adams, M.A. Bezem and T. Coquand. A Strongly Normalizing Computation Rule for Univalence in Higher-Order Minimal Logic. *Proceedings TYPES 2016*, paper 3, Leibniz International Proceedings in Informatics 97, ISBN 978-3-95977-065-1, 2018.
- [75] M.A. Bezem, T. Coquand, P. Dybjer, and M. Escardó. Type Theory with Explicit Universe Polymorphism. *Proceedings TYPES 2022*, paper 13, Leibniz International Proceedings in Informatics 269, ISBN 978-3-95977-285-3, 2023. <https://doi.org/10.4230/LIPIcs.TYPES.2022.13>

## Book chapters

- [76] M.A. Bezem and J.W. Klop. *Abstract Reduction Systems*. Chapter 1 in [90], pages 7–23.
- [77] M.A. Bezem, J.W. Klop and V. van Oostrom. *Advanced ARS Theory*. Chapter 14 in [90], pages 744–775.
- [78] M.A. Bezem. *Mathematical Background*. Appendix to [90], pages 790–825.
- [79] M.A. Bezem. *On Skolem’s Theorem for Coherent Logic*. In: J.W. Klop, V. van Oostrom and F. van Raamsdonk (editors), *Liber Amicorum for Roel de Vrijer*, pp. 31–35, Amsterdam, September 2009.
- [80] M.A. Bezem. Gödel’s system T: higher-order primitive recursion. Chapter 5.3 in: H. Barendregt, W. Dekkers and R. Statman, *Lambda Calculus with Types*, Cambridge University Press, ISBN 9780521766142, 2013.
- [81] M.A. Bezem. Spector’s system B: bar recursion. Chapter 5.4 in: H. Barendregt, W. Dekkers and R. Statman, *Lambda Calculus with Types*, Cambridge University Press, ISBN 9780521766142, 2013.
- [82] M.A. Bezem. Platek’s system Y: fixed point recursion. Chapter 5.5 in: H. Barendregt, W. Dekkers and R. Statman, *Lambda Calculus with Types*, Cambridge University Press, ISBN 9780521766142, 2013.
- [83] The Univalent Foundations Program, I.A.S. *Homotopy Type Theory: Univalent Foundations of Mathematics*, <http://books.google.no/books?id=LkDUKMv3yp0C>, Univalent Foundations, 2013.



- [84] M.A. Bezem and R. Nieuwenhuis. Completeness of Cutting Planes Revisited. In: J. van Eijck, R. Iemhoff and J. Joosten (editors), *Liber Amicorum Alberti*, College Publications, ISBN 9781848902046, 2016.

## Theses

- [85] M.A. Bezem. *Aftelbare functionalen*. Master thesis (in Dutch), Utrecht University, June 1981.
- [86] M.A. Bezem. *Bar recursion and functionals of finite type*. Ph.D. thesis with a separate list of "Stellingen", Utrecht University, October 1986.

## Editorial

- [87] H.P. Barendregt, M.A. Bezem, and J.W. Klop, editors. *Dirk van Dalen Festschrift*, volume 5 of *Quaestiones Infinitae*. Department of Philosophy, Utrecht University, 1993.
- [88] M.A. Bezem and J.F. Groote, editors. *Typed Lambda Calculi and Applications*, Lecture Notes in Computer Science 664. Springer-Verlag, March 1993.
- [89] D. van Dalen and M.A. Bezem, editors. *Computer Science Logic '96*, Lecture Notes in Computer Science 1258. Springer-Verlag, April 1997.
- [90] M.A. Bezem, J.W. Klop and R.C. de Vrijer, editors. *Term Rewriting Systems*. Cambridge Tracts in Theoretical Computer Science 55 (906 pages), ISBN 0521391156, Cambridge University Press, 2003.
- [91] M.A. Bezem, editor. *Computer Science Logic (CSL'11) — 25th International Workshop/20th Annual Conference of the EACSL*, Leibniz International Proceedings in Informatics **12**, Dagstuhl Publishing, ISBN 9783939897323, September 2011. <https://drops.dagstuhl.de/opus/portals/lipics/index.php?semnr=11007>
- [92] M.A. Bezem and P. Urzyczyn, editors. *Special Issue for Computer Science Logic 2011*, Logical Methods in Computer Science, <http://www.lmcs-online.org/ojs/specialIssues.php?id=46>
- [93] M.A. Bezem and A. Mahboubi, editors. *25th International Conference on Types for Proofs and Programs (TYPES 2019)*, Leibniz International Proceedings in Informatics **175**, Dagstuhl Publishing, ISBN 9783959771580, 2019. <https://doi.org/10.4230/LIPIcs.TYPES.2019>

## Other scientific publications

- [94] M.A. Bezem. Logic Programming and PROLOG. *CWI Quarterly*, 1(3):15–29, 1988.
- [95] M.A. Bezem. *Reflection, lazy resolution and homogeneous form*. ESPRIT BRA Integration research document, 1990.
- [96] H.P. Barendregt and M.A. Bezem. Typed lambda calculi. *ERCIM News*, 10:17, 1992.
- [97] M.A. Bezem. Book review of J.-I. Girard, *Proof theory and logical complexity*. *Mededelingen van het Wiskundig Genootschap* 35(3):140–141, 1993.
- [98] M.A. Bezem and J.F. Groote. Theorie versus praktijk in de informatica. *Automatiserings Gids* (in Dutch), 30 April 1993.
- [99] M.A. Bezem and J.F. Groote. *Proving a graph well founded using resolution*. Logic Group Preprint Series 113, Utrecht University, May 1994.
- [100] M.A. Bezem, K. Blok and M. Keijzer. *Metrics for classifying heterogeneous objects*. Report PNA-R9804, May 1998, CWI, Amsterdam.
- [101] M.A. Bezem and D. Hendriks. Using Otter in Coq. *NVTI Newsletter*, 2:22–26, March 1998.
- [102] M.A. Bezem. *Propositions as Types*. Lecture notes used in the course on Type Theory, EEF Summer School on Logical Methods, Aarhus, 2001.
- [103] M.A. Bezem. Book review of F. Kamareddine, T. Laan and R. Nederpelt, *A Modern Perspective on Type Theory - From its Origins until Today*. Applied Logic Series 29, Kluwer Academic Publishers. *Bulletin of Symbolic Logic* 12(2):296–297, June 2006.
- [104] M.A. Bezem. *A Prolog Compendium*. Lecture notes for a course in Prolog, 26 pp., August 2010.