

## Writings by N.G. de Bruijn on Automath and related subjects

The reference **SPA** refers to the following book:

Selected Papers on Automath. Editors R.P. Nederpelt, J.H. Geuvers and R.C. de Vrijer. Studies in Logic, Vol. 133. North-Holland 1994.

### Published papers

**P94.** Automath, a language for mathematics.

Department of Mathematics, Eindhoven University of Technology, TH-report 68-WSK-05, 47 p.

Reprinted in revised form, with two pages commentary, in: Automation and Reasoning, vol 2, Classical papers on computational logic 1967-1970, Springer Verlag 1983, pp. 159-200.

**P95.** The mathematical language Automath, its usage, and some of its extensions.

Symposium on Automatic Demonstration (Versailles December 1986), Lecture Notes in Mathematics vol. 125, Springer Verlag 1970, pp. 29-61.

Reprinted in **SPA**, pp. 73-100.

**P108.** Lambda calculus notation with nameless dummies, a tool for automatic formula manipulation, with application to the Church-Rosser theorem.

Nederl. Akad. Wetensch. Proceedings Ser. A 75 (=Indagationes Math. 34) (1972) 381-392.

Reprinted in **SPA**, pp. 375-388.

**P109.** Set theory with type restrictions.

In: Infinite and Finite Sets, ed. A. Hajnal, R. Rado and Vera T. Sos, vol I, Coll. Math. Soc. J. Bolyai 10 (1975), pp. 205-314.

Reprinted in **SPA**, pp. 841-847.

**P112.** The Automath mathematics checking project.

Proceedings of the symposium APLASM, ed. P. Braffort, Vol I, Orsay 1973. Reprinted (with epilogue 1981) in: Studies in Logic, Grammar and Rhetorics, ed. J. Kopania, Papers of Warsaw University no 40, Humanities vol II. Bialystok 1983.

**P113.** Automath, a language for mathematics.

Séminaire Math. Sup. 1971. Les Presses de l'Université de Montréal 1973, 58 p.

- P125.** Lambda calculus with namefree formulas involving symbols that represent reference transforming mappings.  
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- P127.** A namefree lambda calculus with facilities for internal definition of expressions and segments.  
 Department of Mathematics, Eindhoven University of Technology, TH-report 78-WSK-03 (1978), 39 p.
- P130.** Wees contextbewust in WOT.  
 Euclides 55 (1979/1980) 7-12.
- P131.** Grammatica van WOT.  
 Euclides 55 (1979/1980) 66-72.
- P132.** Van alles en nog wat over gebonden variabelen in wiskundige taal.  
 Euclides 55 (1979/1980) 262-268.
- P133.** Wiskundigen, let op Uw Nederlands.  
 Euclides 55 (1979/1980) 429-435.
- 138.** A survey of the project AUTOMATH.  
 In: To H.B. Curry: Essays in combinatory logic, lambda calculus and formalism, ed. J.P. Seldin and J.R. Hindley, Academic Press 1980, pp. 579-606.  
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- P149.** Formalization of constructivity in Automath.  
 In: Papers dedicated to J.J. Seidel, ed. P.J. de Doelder, J. de Graaf and J.H. van Lint. EUT-Report 84-WSK-03, ISSN 0167-9708, Department of Mathematics and Computing Science, Eindhoven University of Technology, 1984, pp. 76-101.  
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- P152.** Checking mathematics with the aid of a computer.  
 In: The Influence of Computers and Informatics on Mathematics and its Teaching, (ed. A.G. Howson and J.-P. Kahane), pp. 61-68. Cambridge University Press 1986.
- P153.** Generalizing Automath by means of a lambda-typed lambda calculus.  
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- P161.** Telescopic mappings in typed lambda calculus.  
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- P162.** The use of justification systems for integrated semantics  
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- P165.** Machinale verificatie van redeneringen.  
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- P167.** Mathematics and Computers.  
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- P168.** Checking mathematics with computer assistance.  
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- P169.** A plea for weaker frameworks.  
 In: Logical Frameworks (ed. G. Huet, G. Plotkin), pp. 40-67. Cambridge University Press, 1991.
- P170.** The Mathematical Vernacular, a language for mathematics with typed sets.  
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- P172.** The Mathematical Vernacular, a language for mathematics with typed sets. [Extension of P170]  
**SPA**, pp. 865-935. North-Holland 1994.
- P173.** Wiskundige Omgangstaal.  
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- P175.** Algorithmic definition of lambda-typed lambda calculus.  
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- P177.** On the roles of types in mathematics.  
 In: The Curry-Howard Isomorphism, ed. Ph. de Groote. Cahiers du Centre de Logique nr. 8, Université catholique de Louvain, Département de Philosophie, Academia, Louvain-la-Neuve 1995, pp. 27-54.

- P179.** Highlighting the lambda-free fragment of Automath.  
 In: Higher Order Logic Theorem Proving and its Applications. 7th International Workshop, Valletta, September 1994, Proceedings. Lecture Notes in Computer Science Vol. 859, pp. 81-96. Springer-Verlag 1994.
- P180.** Reflections on Automath. [Translation of V40 (1990)].  
**SPA**, pp. 201-228.
- P181.** AUT-SL, a single line version of Automath. [Reprint of report N35 (1971)].  
**SPA**, pp. 275-281.
- P182.** Some extensions of Automath: the AUT4-family. [Reprint of report M10 (1974)].  
**SPA**, pp. 283-288.
- P183.** AUT-QE without type inclusion. [Reprint of report N56 (1978)].  
**SPA**, pp. 289-297.
- P184.** Computer program semantics in space and time. [Reprint of report M8 (1983)].  
**SPA**, pp. 947-972.
- P185.** Verification of mathematical proofs by a computer. A preparatory study for a project Automath. [Translation of V1 (1966)].  
**SPA**, pp. 57-72.
- P186.** Example of a text written in Automath. [Reprint of report M2 (1968), with comments by R.C. de Vrijer].  
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- P188.** Influences of type-theoretical checking on the philosophy of mathematics.  
 In: Twenty-Five Years of Constructive Type Theory. Proceedings of a Congress Held in Venice, October 1995. Ed. G. Sambin and J.M. Smith. Oxford Logic Guides, nr. 36. Clarendon Press, Oxford 1998.
- P190.** Philosophical aspects of computerized verification of mathematics.  
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## Reports Eindhoven University of Technology, Dept. Math.

- N24. SEMIPAL 2, an extension of the mathematical notational language SEMIPAL.
- N27. Vérification des textes mathématiques par un ordinateur.
- N28. A processor for PAL.
- N29. The syntax of PAL and Automath.
- N32. On the use of bound variables in Automath.
- N33. Coding system for AUT-QE.
- N34. Formulas with indications for establishing definitional. equivalence.
- N35. AUT-SL, a single line version of Automath. ( Published as P181.)
- N36. Some abbreviations in the input language for Automath.
- N43. A framework for the description of a number of members of the Automath family.
- N50. Modifications of the 1968 version of Automath.
- N53. Notation for concatenation.
- N54. A namefree lambda calculus with formulas involving symbols that represent reference transforming mappings.
- N55. Some auxiliary operators in AUT-II.
- N56. AUT-QE without type inclusion. (Published as P183.)
- N57. A note on weak diamond properties.
- N61. Lambda calculus with postponed substitution.
- N63. Additional note on AUT-QE-NTI.
- N64. Towards a definition of AUT-SL by means of a formal description of binary trees.
- N65. Contribution to the ICMI discussion on "The influence of computers on mathematics and its teaching".
- N66. The rule of the superfluous third.

## Unofficial reports

- M2. Example of a text in Automath. (Published as P186.)
- M5. A technique for deriving semantic information on computer programs.
- M6. A system for handling syntax and semantics of computer programs in terms of the mathematical language Automath.
- M7. The use of the language Automath for syntax and semantics of programming languages.
- M8. Computer program semantics in space and time. (Published as P184.)
- M10. Some extensions of Automath: the AUT4-family. (Published as P182.)

- M11. Recommendations concerning standardization of mathematical formulas.
- M12. A new definition of correctness of expressions in lambda-typed lambda-calculus.
- M16. Classical logic based on Pierce's law.
- M17. Telescope mappings.
- M18. Formalizing the mathematical vernacular.
- M19. Rapport over het Automath project.
- M20. Lambda typed lambda calculus paranormal.
- M21. A note on generalized conjunction.
- M22. Upper bound for the length of the norm of an expression in lambda-typed lambda calculus.
- M23. Upper bounds for the length of normal forms and for the length of reduction sequences in lambda-typed lambda calculus.

### **Material connected to courses and lectures**

- V1. Verificatie van wiskundige bewijzen door een computer.
- V7. Automath, a language for mathematics.
- V8. Automath - ein Projekt zur Kontrolle von Mathematik.
- V13. Het Automath-project.
- V14. AUT-SL-varianten van AUT-talen.
- V15. Nederlandse wiskundige zinnen met letters.
- V16. Materiaal uitgereikt bij het college wiskundige talen.
- V17. Nederlandse zinnen met formulaire zinsdelen.
- V19. Losse opmerkingen over taalgebruik in de wiskunde.
- V20. Natuurlijke deductie: implicatiecalculi.
- V21. Opmerkingen over wiskundige taal.
- V22. Lezen en schrijven van formules.
- V23. Taal en structuur van de wiskunde.
- V24. Het onbepaalde lidwoord in wiskundig nederlands.
- V30. Syllabus inleiding logica.
- V31. Aanvulling op de syllabus logica.
- V32. Materiaal uitgereikt bij het college wiskundige talen.
- V34. Auxiliary material in a course on Automath.
- V35. Notes on typed lambda calculus.
- V36. Computers in het onderwijs.
- V37. Lambda-Delta.
- V38. Mathematical Vernacular.
- V39. Mathematical Vernacular, examples.
- V40. Gedachten rondom Automath.
- V41. A plea for weaker frameworks. (Published as P169.)