
References

1. O. Aberth, *Computable Analysis*, McGraw-Hill, New York, 1980.
2. O. Aberth, *Computable Calculus*, Academic Press, San Diego, CA, 2001.
3. P. Aczel and M. Rathjen, *Notes on Constructive Set Theory*, Report No. 40, Institut Mittag-Leffler, Royal Swedish Academy of Sciences, 2001.
4. G. Bachman and L. Narici, *Functional Analysis*, Academic Press, New York, 1966.
5. A. Bauer, Realizability as the connection between computable and constructive mathematics, Proceedings of CCA 2005, Kyoto, Japan, 25–29 August 2005; to appear.
6. M.J. Beeson, *Foundations of Constructive Mathematics*, *Ergeb. Math. und ihrer Grenzgebiete*, 3. Folge, **6**, Springer-Verlag, Heidelberg, 1985.
7. J. Berger and D.S. Bridges, A bizarre property equivalent to the Π_1^0 -fan theorem, *Logic J. of the IGPL*, to appear.
8. J. Berger and P.M. Schuster, Classifying Dinis theorem, to appear in *Notre Dame J. Formal Logic*.
9. E.A. Bishop, *Foundations of Constructive Analysis*, McGraw-Hill, New York, 1967.
10. E.A. Bishop, Mathematics as a numerical language, in: *Intuitionism and Proof Theory* (J. Myhill, A. Kino, and R.E. Vesley, eds.), 53–71, North-Holland, Amsterdam, 1970.
11. E.A. Bishop, Schizophrenia in contemporary mathematics, in: *Errett Bishop: Reflections on Him and His Research* (M. Rosenblatt, ed.), 1–32, *Contemporary Math.* **39**, Amer. Math. Soc., Providence, RI, 1985.
12. E.A. Bishop and D.S. Bridges, *Constructive Analysis*, *Grundlehren der math. Wissenschaften* **279**, Springer-Verlag, Heidelberg, 1985.
13. E.A. Bishop and H. Cheng, *Constructive Measure Theory*, *Mem. Amer. Math. Soc.* **116**, 1972.
14. D.S. Bridges, On weak operator compactness of the unit ball of $\mathcal{L}(H)$, *Zeit. math. Logik Grundlagen Math.* **24**, 493–494, 1978.
15. D.S. Bridges, Recent progress in constructive approximation theory, in *The L.E.J. Brouwer Centenary Symposium* (A.S. Troelstra and D. van Dalen, eds.), 41–50, North-Holland, Amsterdam, 1982.
16. D.S. Bridges, A constructive Morse theory of sets, in *Mathematical Logic and Its Applications* (D. Skordev, ed.), 61–79, Plenum Publishing Corp., New York, 1987.
17. D.S. Bridges, Locatedness, convexity, and Lebesgue measurability, *Quart. J. Math. Oxford* (2) **39**, 411–421, 1988.

18. D.S. Bridges, A constructive look at the real number line, in: *Real Numbers, Generalizations of the Reals, and Theories of Continua* (P. Ehrlich, ed.), 29–92, Synthese Library **242**, Kluwer Academic Publishers, Dordrecht, 1994.
19. D.S. Bridges, Constructive mathematics: a foundation for computable analysis, *Theoretical Computer Science* **219**(1–2), 95–109, 1999.
20. D.S. Bridges, Constructive methods in mathematical economics, in *Mathematical Utility Theory*, *J. Econ. (Zeitschrift für Nationalökonomie)*, Suppl. **8**, 1–21, 1999.
21. D.S. Bridges, Dinis Theorem: a constructive case study, in: *Combinatorics, Computability and Logic* (Proceedings of DMTCS01, Constanța, Romania, 2–6 July 2001; C.S. Calude, M.J. Dinneen, S. Sburlan, eds.), 69–80, DMTCS Series **17**, Springer-Verlag, London, 2001.
22. D.S. Bridges, A weak constructive sequential compactness property and the fan theorem, *Logic J. of the IGPL* **13**(2), 151–158, 2005.
23. D.S. Bridges and N.F. Dudley Ward, Constructing ultraweakly continuous linear functionals on $\mathcal{B}(H)$, *Proc. American Math. Soc.* **126**(11), 3347–3353, 1998.
24. D.S. Bridges and H. Ishihara, Linear mappings are fairly well-behaved, *Arch. Math.* **54**, 558–562, 1990.
25. D.S. Bridges and H. Ishihara, A definitive constructive open mapping theorem?, *Math. Logic Quarterly* **44**, 545–552, 1998.
26. D.S. Bridges and H. Ishihara, Constructive unbounded operators, in: *Reuniting the Antipodes—Constructive and Nonstandard Views of the Continuum* (Proceedings of the Symposium in San Servolo/Venice, Italy, May 17–22, 1999; U. Berger, H. Osswald, and P.M. Schuster, eds.), 25–37, Synthese Library, Kluwer Academic Publishers, Dordrecht, December 2001.
27. D.S. Bridges, H. Ishihara, and P.M. Schuster, Sequential Compactness in Constructive Analysis, *Österr. Akad. Wiss. Math.–Natur. Kl. Sitzungsber. II.* **208**, 159–163, 1999.
28. D.S. Bridges, H. Ishihara, and L.S. Viță, Computing infima on convex sets, with applications in Hilbert spaces, *Proc. Amer. Math. Soc.* **132**(9)2723–2732, 2004.
29. D.S. Bridges, W.H. Julian, and R. Mines, A constructive treatment of open and unopen mapping theorems, *Zeit. math. Logik Grundlagen Math.* **35**, 29–43, 1989.
30. D.S. Bridges and A. Mahalanobis, Bounded variation implies regulated: a constructive proof, *J. Symb. Logic* **66**(4), 1695–1700, 2001.
31. D.S. Bridges and R. Mines, Sequentially continuous linear mappings in constructive analysis, *J. Symb. Logic* **63**(2), 579–583, 1998.
32. D.S. Bridges and G. Popa, Exact, continuous boundary crossings out of convex sets in \mathbb{R}^N , *Quart. J. Math.* **54**, 391–398, 2003.
33. D.S. Bridges and S. Reeves, Constructive mathematics, in theory and programming practice, *Philosophia Mathematica* **7**(1), 65–104, 1999.
34. D.S. Bridges and F. Richman, *Varieties of Constructive Mathematics*, London Math. Soc. Lecture Notes **97**, Cambridge Univ. Press, 1987.
35. D.S. Bridges, F. Richman, and P.M. Schuster, Adjoints, absolute values, and polar decompositions, *J. Operator Theory* **44**, 243–254, 2000.
36. D.S. Bridges, F. Richman, and Y. Wang, Sets, complements and boundaries, *Proc. Koninklijke Nederlandse Akad. Wetenschappen (Indag. Math. N.S.)* **7**(4), 425–445, 1996.
37. D.S. Bridges and L.S. Viță, Weak continuity properties in constructive analysis, *Logic J. of the IGPL* **7**(3), 277–281, 1999.
38. D.S. Bridges and L.S. Viță, Apartness spaces as a framework for constructive topology, *Ann. Pure Appl. Logic* **119** (1–3), 61–83, 2003.

39. D.S. Bridges and L.S. Viță, The constructive uniqueness of the locally convex topology on \mathbb{R}^n , in: *From Sets and Types to Topology and Analysis* (L. Crosilla and P.M. Schuster, eds.), 304–315, Oxford Logic Guides **32**, Clarendon Press, Oxford, 2005.
40. D.S. Bridges and L.S. Viță, *Apartness Spaces*, book, in preparation.
41. L.E.J. Brouwer, *Over de Grondslagen der Wiskunde*, doctoral thesis, University of Amsterdam, 1907. Reprinted with additional material (D. van Dalen, ed.) by Mathematisch Centrum, Amsterdam, 1981.
42. R.L. Constable et al., *Implementing Mathematics with the Nuprl Proof Development System*, Prentice-Hall, Englewood Cliffs, New Jersey, 1986.
43. L. Crosilla and P.M. Schuster (eds.), *From Sets and Types to Topology and Analysis*, Oxford Logic Guides **32**, Clarendon Press, Oxford, 2005.
44. D. van Dalen (ed.), *Brouwers Cambridge Lectures on Intuitionism*, Cambridge University Press, Cambridge, 1981.
45. D. van Dalen, *Mystic, Geometer, and Intuitionist*, Clarendon Press, Oxford, 1999 (Vol. 1) and 2005 (Vol. 2).
46. R. Diaconescu, Axiom of choice and complementation, Proc. Amer. Math. Soc. **51**, 176–178, 1975.
47. J. Dieudonné, *Foundations of Modern Analysis*, Academic Press, New York, 1960.
48. M.A.E. Dummett, *Elements of Intuitionism* (2nd edition), Oxford Logic Guides **39**, Clarendon Press, Oxford, 2000.
49. H.M. Edwards, *Essays in Constructive Mathematics*, Springer Science + Business Media, Inc., New York, 2005.
50. N. D. Goodman and J. Myhill, Choice implies excluded middle, Zeit. math. Logik und Grundlagen Math. **24**, 461.
51. S. Hayashi and H. Nakano, *PX: A Computational Logic*, MIT Press, Cambridge MA, 1988.
52. A. Heyting, Die formalen Regeln der intuitionistischen Logik, Sitzungsber. preuss. Akad. Wiss. Berlin, 42–56, 1930.
53. D. Hilbert, Über das Unendliche, Mathematische Annalen **95**, 161–190, 1926; translated in *Philosophy of Mathematics* (P. Benacerraf and H. Putnam, eds.), 183–201, Cambridge University Press, Cambridge, 1964.
54. D. Hilbert, Die Grundlagen der Mathematik, Abhandlungen Math. Sem. Univ. Hamburg **V**, 65–85, 1927.
55. H. Ishihara, On the constructive Hahn–Banach theorem, Bull. London Math. Soc. **21**, 79–81, 1989.
56. H. Ishihara, *Boundedness, normability and compactness of constructive linear mappings*, Ph.D. dissertation, Tokyo Institute of Technology, Tokyo, 1990.
57. H. Ishihara, Continuity and nondiscontinuity in constructive analysis, J. Symb. Logic **56**(4), 1349–1354, 1991.
58. H. Ishihara, Constructive compact operators on a Hilbert space, Ann. Pure Appl. Logic **52**, 31–37, 1991.
59. H. Ishihara, Continuity properties in constructive analysis, J. Symb. Logic **57**, 557–565, 1992.
60. H. Ishihara, A constructive version of Banachs inverse mapping theorem, New Zealand J. Math **23**, 71–75, 1994.
61. H. Ishihara, Locating subsets of a Hilbert space, Proc. Amer. Math. Soc. **129**(5), 1385–1390, 2001.
62. H. Ishihara, Constructive reverse mathematics: compactness properties, in: *From Sets and Types to Topology and Analysis* (L. Crosilla and P.M. Schuster, eds.), 245–267, Oxford Logic Guides **32**, Clarendon Press, Oxford, 2005.

63. H. Ishihara and L.S. Viță, Locating subsets of a normed space, *Proc. Amer. Math. Soc.* **131**(10), 3231–3239, 2003.
64. H. Ishihara and L.S. Viță, A constructive Banach inverse mapping theorem in \mathcal{F} -spaces, *New Zealand J. Math.*, to appear.
65. R.V. Kadison and J.R. Ringrose, *Fundamentals of the Theory of Operator Algebras* (Vol. 1), Academic Press, New York, 1988.
66. B.A. Kushner, *Lectures on Constructive Mathematical Analysis*, Amer. Math. Soc., Providence RI, 1985.
67. A.A. Markov, *Theory of Algorithms* (Russian), Trudy Mat. Istituta imeni V.A. Steklova **42** (Izdatelstvo Akademi Nauk SSSR, Moskva), 1954; English translation by J.J. Schoor-Kan and PST staff, Israel Program for Scientific Translations, Jerusalem, 1961.
68. P. Martin-Löf, *Notes on Constructive Mathematics*, Almqvist and Wiksell, Stockholm, 1970.
69. P. Martin-Löf, An Intuitionistic Theory of Types: Predicative Part, in: *Logic Colloquium 1973* (H.E. Rose and J.C. Shepherdson, eds.), 73–118, North-Holland, Amsterdam, 1975.
70. P. Martin-Löf, Constructive mathematics and computer programming, in *Proc. 6th. Int. Congress for Logic, Methodology and Philosophy of Science* (L. Jonathan Cohen, ed.), 153–179, North-Holland, Amsterdam, 1980.
71. G. Metakides, A. Nerode, and R. Shore, Recursive limits on the Hahn–Banach theorem, in: *Errett Bishop: Reflections on Him and His Research* (M. Rosenblatt, ed.), 85–91, Contemporary Math. **39**, Amer. Math. Soc., Providence, R.I., 1985.
72. R. Mines, F. Richman, and W. Ruitenburg, *A Course in Constructive Algebra*, Universitext, Springer-Verlag, Heidelberg, 1988.
73. J.R. Moschovakis, The effect of Markov's principle on the intuitionistic continuum, preprint, UCLA, April 2005.
74. J. Myhill, Constructive set theory, *J. Symb. Logic* **40**, 347–382, 1975.
75. F. Richman (ed.), *Constructive Mathematics* (Proceedings of the Conference at Las Cruces, New Mexico, August 1980), Lecture Notes in Mathematics **873**, Springer-Verlag, Heidelberg, 1981.
76. F. Richman, The fundamental theorem of algebra: a constructive development without choice, *Pacific J. Math.* **196**, 213–230, 2000.
77. F. Richman, Adjoints and the image of the unit ball, *Proc. Amer. Math. Soc.* **129**, 1189–1193, 2001.
78. H.L. Royden, Aspects of constructive analysis, in: *Errett Bishop: Reflections on Him and His Research* (M. Rosenblatt, ed.), 57–64, Contemporary Mathematics **39**, American Math. Soc., 1985.
79. W. Rudin, *Real and Complex Analysis*, McGraw-Hill, New York, 1970.
80. E. Schechter, *Handbook of Analysis and Its Foundations*, Academic Press, San Diego, 1997.
81. P.M. Schuster, What is continuity, constructively?, *J.UCS* **11**(12), 2076–2085, 2005.
82. P.M. Schuster, L.S. Viță, and D.S. Bridges, Apartness as a relation between subsets, in: *Combinatorics, Computability and Logic* (Proceedings of DMTCS01, Constanța, Romania, 2–6 July 2001; C.S. Calude, M.J. Dinneen, S. Sburlan, eds.), 203–214, DMTCS Series **17**, Springer-Verlag, London, 2001.
83. B. Spitters, Located operators, *Math. Logic Quarterly* **48**(Suppl. 1), 107–122, 2002.
84. W.P. van Stigt, *Brouwers Intuitionism*, North-Holland, Amsterdam, 1990.
85. G. Stolzenberg, *Review of [9]*, *Bull. Amer. Math. Soc.* **76**, 301–323, 1970.

86. W. Takahashi, *Nonlinear Functional Analysis*, Yokohama Publishers, 2000.
87. A. Takayama, *Mathematical Economics*, The Dryden Press, Hinsdale, IL, 1973.
88. A.S. Troelstra and D. van Dalen, *Constructivism in Mathematics: An Introduction* (two volumes), North Holland, Amsterdam, 1988.
89. F. Waaldijk, On the foundations of constructive mathematics, *Foundations of Science* **10**(3), 249–324, 2005.
90. H. Weber, Leopold Kronecker, *Jahresber. der Deutschen Math. Verein* **2**, 5–31, 1893.
91. K. Weihrauch, *Computable Analysis*, Springer-Verlag, Heidelberg, 2000.
92. F. Ye, Towards a constructive theory of unbounded operators, *J. Symb. Logic* **65**, 357–370, 2000.
93. R. Zach, Hilberts Program, in: *The Stanford Encyclopedia of Philosophy* (E.N. Zalta, ed.), URL <http://plato.stanford.edu/archives/fall2003/entries/hilbert-program/>.

The above list contains only a fraction of the publications on constructive mathematics that have appeared in the last forty years, and does not include the sources of all results in our book. The reader should not fall into the trap of believing that an unascribed result was first produced by the authors.

We mention two websites that may interest the reader:

<http://www.math.canterbury.ac.nz/php/groups/cm/faq/>
<http://plato.stanford.edu/entries/mathematics-constructive/>

In addition, many of the authors of items in the bibliography have websites that are worth a visit.

The primary historical reference on constructive analysis is [9], the review of which [85] is interesting in its own right. Later references for Bishop-style constructivism are [12, 34], the latter of which gives comparisons between BISH, INT, and RUSS. Beeson [6] and Troelstra–van Dalen [88] contain a wealth of information about the logic, philosophy, and practice of constructive mathematics. For some applications of constructive mathematics, see [20, 33, 92]. The definitive reference for constructive algebra is [72], but [49] should be consulted for more recent work in the field.

The classic work on intuitionism is [48]. The life and works of Brouwer himself are discussed in [44, 45, 84]. Martin-Löfs early work on constructive mathematics is found in [68], and his theory of types appears in [69].

Among the most recent varieties of computable analysis is that of Weihrauch [91]; the translation of BISH into Weihrauchs framework is described in [5].

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Kac/Cheung: Quantum Calculus
Kannan/Krueger: Advanced Analysis
Kelly/Matthews: The Non-Euclidean Hyperbolic Plane
Kostrikin: Introduction to Algebra
Kuo: Introduction to Stochastic Integration
Kurzweil/Stellmacher: The Theory of Finite Groups: An Introduction
Lang: Introduction to Differentiable Manifolds
Lorenz: Algebra: Volume I: Fields and Galois Theory
Luecking/Rubel: Complex Analysis: A Functional Analysis Approach
MacLane/Moerdijk: Sheaves in Geometry and Logic
Marcus: Number Fields
Martinez: An Introduction to Semiclassical and Microlocal Analysis
Matsuki: Introduction to the Mori Program
McCarthy: Introduction to Arithmetical Functions
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Meyer: Essential Mathematics for Applied Fields
Mines/Richman/Ruitenburg: A Course in Constructive Algebra
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Morris: Introduction to Game Theory
Poizat: A Course In Model Theory: An Introduction to Contemporary Mathematical Logic
Polster: A Geometrical Picture Book
Porter/Woods: Extensions and Absolutes of Hausdorff Spaces
Procesi: Lie Groups
Radjavi/Rosenthal: Simultaneous Triangularization
Ramsay/Richtmyer: Introduction to Hyperbolic Geometry
Rautenberg: A Concise Introduction to Mathematical Logic, 2nd ed.
Reisel: Elementary Theory of Metric Spaces
Ribenboim: Classical Theory of Algebraic Numbers
Rickart: Natural Function Algebras
Rotman: Galois Theory
Rubel/Colliander: Entire and Meromorphic Functions
Runde: A Taste of Topology
Sagan: Space-Filling Curves
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Schiff: Normal Families
Shapiro: Composition Operators and Classical Function Theory
Simonnet: Measures and Probability
Smith: Power Series From a Computational Point of View
Smith/Kahanpää/Kekäläinen/Traves: An Invitation to Algebraic Geometry
Smorynski: Self-Reference and Modal Logic
Stillwell: Geometry of Surfaces
Stroock: An Introduction to the Theory of Large Deviations
Sunder: An Invitation to von Neumann Algebras
Tondeur: Foliations on Riemannian Manifolds
Toth: Finite Möbius Groups, Minimal Immersions of Spheres, and Moduli
Van Brunt: The Calculus of Variations
Weintraub: Galois Theory

Wong: Weyl Transforms

Zhang: Matrix Theory: Basic Results and Techniques

Zong: Sphere Packings

Zong: Strange Phenomena in Convex and Discrete Geometry