



Dr. Thomas Forster

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June 30, 2010

Date of Birth 12/iv/1948

État Civile: single

Tertiary Education

B.A. University of East Anglia: Philosophy/History of Music 1968 2.1 honours;

M.A. University of East Anglia: Philosophy (Dissertation Title: “Nominalism”) 1969;

Ph.D. University of Cambridge: Mathematics (Dissertation on Quine’s Set Theory
NF) 1977.

Composition, years 1 and 2: Auckland Conservatory of Music 1978-9

Other Qualifications

E.C.N.E. Qualifying Examination in Clinical Neurophysiology 1976

Prizes and other memorabilia

J.T. Knight Memorial Prize in Pure Mathematics, Cambridge 1974

In 2009 my article “The iterative conception of set” (item 38 below) was named
by *The Philosophers’ Annual* as one of the ten best philosophy articles of 2008

Learned Societies, Editorships, etc.

I am a fellow of the Pittsburgh Center for Philosophy of Science, a *correspondent étranger* of the Belgian Centre National de Recherches de Logique, an External Researcher of the Centre for Discrete Mathematics and Theoretical Computer Science in Auckland, and Adjunct Researcher at the Department of Philosophy and Religious studies at the University of Canterbury at Christchurch and an Associate Editor of *The Human Nature* review. (Membership of organisations which one can freely join is not listed here). I have been external Ph.D. examiner for the University of Oxford and for the Free University of Brussels (ULB); I have been consulted by departmental promotions committees at the Université Catholique de Louvain and the University of California to advise on the granting of tenure, and by Boise State University to advise on sabbatical applications. I have also been asked by the Science funding body of the Government of Austria to referee project applications.

Positions Held

2008-Present

Reader (30%), Philosophy Department, University of East Anglia.

2007-Present

Affiliated Lecturer, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge.

2007-Present

Occasional Medical Technical Officer, Department of Clinical Neurophysiology, Hertford County Hospital, Hertford.

1990-Present

Life Associate in Residence and Director of Studies in Computer Science at Clare Hall in the University of Cambridge.

2006-Present

University Lecturer (part time), Department of Philosophy and Religious studies, University of Canterbury, Christchurch, New Zealand.

2003-2006

Senior lecturer, Department of Computer Science, Distance Learning Section, Queen Mary Westfield College in the University of London.

2005 (second semester)

Visiting lecturer, Philosophy department / Fellow-in-residence, Centre for Discrete Mathematics and Theoretical Computer Science University of Auckland, Auckland, New Zealand.

2003

Senior Research Fellow in Residence, Centre for the Philosophy of Science, University of Pittsburgh

2002

University Lecturer, Dept. of Computer Science, Queen Mary Westfield College in the University of London.

2001

Visiting Researcher, School of Logic and Philosophy of Science, University of California at Irvine (spring quarter).

1993-2003

Medical Technical Officer (part-time), Addenbrooke's Hospital, Cambridge.

1990

Lecturer in Mathematics/Tutor in Philosophy (two one-year part-time appointments), University of Otago, Dunedin, New Zealand.

1989 Postdoctoral Research Associate, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge. *I worked for an ESPRIT-funded project, combining Logic and Functional Programming in a new programming language.*

1986-88

Postdoctoral Research Associate, Computer Laboratory, University of Cambridge. *I worked on a project in Automated Theorem Proving and Natural Language Processing. The project organisers were Drs. Mike Gordon and Steve Pulman.*

1981-86

Lecturer and Tutor, Department of Philosophy, Victoria University of Wellington. *Tutoring first year courses, and lecturing Philosophy of Mind at M.A. level.*

1979-81

Programmer-Analyst, Control Data Corporation, Wellington, New Zealand. *This post involved writing software for an advanced flight telecommunications network.*

1977-79

Medical Technical Officer, Department of Clinical Neurophysiology Auckland Hospital, New Zealand *Similar work to my work at Addenbrookes.*

1976-77

Medical Technical Officer, Department of Clinical Neurophysiology, Radcliffe Infirmary, Oxford. *Same as above.*

1971-72

Junior Lecturer, Philosophy Department, University of Auckland, New Zealand

1969-71

Medical Technical Officer, Cherry Farm Hospital, Dunedin, New Zealand.

Supervising

At Otago in 1990 I tutored first-year Ethics classes and first year Linear Algebra.

In Cambridge I supervise students for an assortment of undergraduate and graduate courses in Mathematics, Computer Science and Philosophy. I have also supervised HPS M. Phil. projects and Computer Science Diploma projects. A proposal of mine for a Part II (third year) project has been put on the Physiology department's list of suggested projects. (It involves repeating some Penrose-inspired studies which allegedly show quantum effects in the performance of conscious tasks. It has connections with my work in EEGs). There are three Part III (fourth year) Mathematics essays that I sponsor and I have a few takers every year.

Lecturing

Nowadays I lecture the following courses every year:

- A Mathematics Part III (Fourth year, a kind of M.Sc.) course at Cambridge entitled "Set Theory and Logic";
- A course in Logic for linguistics students, Linguistics department, University of Cambridge
- The first-year "philosophical skills" course for philosophy students at UEA
- The Logical-Prerequisites course for the M.Phil. In Computer Science at the University of Cambridge.
- The 209/309 Course in Further Logic at the University of Canterbury in New Zealand

At various times I have lectured the following

- A Part II (third year) course in the Computer Science Tripos entitled "Philosophy" [for computer scientists]. Philosophy of Mind, of Language and of Mathematics naturally loomed large in it;
- A Philosophy of Mind course at the Victoria University of Wellington;
- The third year course in Logic and Set theory in the Mathematics Tripos at Cambridge. (see book 4 below);
- A course at the Cambridge University Science Summer School entitled "Applicable Pure Mathematics in the twentieth century";
- A Fourth year course in Foundations of Set theory (at the University of Auckland, second semester 2005, 2008);
- A Graduate level course in WQO and BQO theory (at the University of Auckland, second semester 2005);
- A Fourth year course in Foundations of Set Theory (at the Université Libre de Bruxelles, first semester 2005-6);

I have also been invited to contribute to DPMMS's programme of *Lectures Intended for Graduates* ("Part IV").

Other Relevant Activities

In 2003-4 I had a Postdoctoral Fellow, Olivier Esser from Brussels, to work on NF with me. In 2007 (and again in 2008) I had Dr Libert of the ULB visit me holding the same Postdoctoral Fellowship.

I am supervising Dang Vu and Zachiri Mckenzie for Ph.D.s.

Publications

Much of this material is available in .ps or .pdf form from my home page: www.dpmms.cam.ac.uk/~tf.

Among the articles, items 16, 32 and 40 in the list of articles below were the results of invited talks at various meetings. Items 24, 25 and 27 were written at the invitation of people compiling those volumes.

Books

- [1] Quine's NF, an introduction. Cahiers du Centre de Logique, Louvain-La-Neuve 1981
- [2] Set Theory with a Universal set. Oxford Logic Guides. OUP 1992.
- [3] Second (revised) edition of [2]. Oxford Logic Guides. OUP 1995.
- [4] Logic, Induction and Sets, London Mathematical Society Undergraduate Texts in Mathematics **56** Cambridge University Press.
- [5] Reasoning about Theoretical Entities. Advances in Logic vol.3 World Scientific (UK)/Imperial College press 2003.

Undergoing final revision

- [6] An Introduction to the Axioms of Set Theory. Cambridge University Press.

In Preparation

- [1] An Introduction to BQO and WQO theory. (with Monika Seisenberger—being considered by CUP for the LMS lecture notes series)
- [2] An Introductory Course in Logic for Philosophy Students (based on my lectures in Christchurch and UEA).

Book proposals

- [1] Imaginaries in Mathematics: their History and Logic. (with Piers Bursill-Hall)—being discussed with WSP/ICpress.
- [2] Philosophy for Computer Scientists. (being discussed with WSP/ICpress and Princeton.)

Collections

I was the editor of:

- [1] The Cresswell Festschrift, a special number of Logique et Analyse, **46** fascicule 181 (2003) to coincide with Cresswell's 65th birthday.

- [2] Logic and Rhetoric. Proceedings of a conference held in Cambridge, october 2006, to appear in a special number of *Logique et Analyse* **53** fascicule 210 June 2010.
- [3] NF 2007. Proceedings of the 70th anniversary NF meeting in Cambridge in 2007. I am editing this with Marcel Crabbé. *Cahier du Centre de Logique* **16** 2009. (www.dpmms.cam.ac.uk/~tf/NFUK.html.)

Proposed Collections

It is proposed that I should edit the following.

- [1] Case studies in Philosophy of Mathematics (I am discussing with CUP the proposal to edit a collection under this title) (“Definite Maybe”s already from Ken Manders and Robin Milner)

Articles

- [1] (with B.G.Smith) A new proof of the Skolem-Löwenheim theorem (abstract) *Journal of Symbolic Logic* **44** (1977) p 447.
- [2] Further consistency and independence results in NF obtained by the permutation method. *Journal of Symbolic Logic* **48** (1983) pp 236-8.
- [3] A Point of Contact between Complexity Theory, Mathematical Logic and Game Theory. *Eureka* **45** 1985 pp 15-20.
- [4] Axiomatising Set Theory with a Universal Set, in “La Theorie des ensembles de Quine” Cahiers du Centre de Logique 4, CABAY Louvain-La-neuve 1983.
- [5] The Status of the Axiom of Choice in Set Theory with a Universal Set. *Journal of Symbolic Logic* **50** (1985) pp 701—7.
- [6] Term Models for a weak Set Theory with a Universal Set. *Journal of Symbolic Logic* v 52 (1987) pp 374-387. (Reprinted in Follesdal, ed: Philosophy of Quine, V. Logic, Modality and Philosophy of Mathematics).
- [7] Permutation Models in the sense of Rieger-Bernays. *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik* **33** (1987) pp 201–210.
- [8] A Consistent second-order Theory with no (second-order) Models. *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik* **35** (1989) pp 385-6.
- [9] Permutation Models and Stratified Formulæ, a Preservation Theorem. *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik* **36** (1990) pp 385-388.
- [10] (With Richard Kaye) End-extensions preserving Power Set. *Journal of Symbolic Logic* **56** pp 323-328. (Reprinted in Follesdal (ed.) Philosophy of Quine, **V**: Logic, Modality and Philosophy of Mathematics)
- [11] The Animal Rights Question *Nature* July 4th, 1991. **352** 6330:9.
- [12] On a Problem of Dzierzgowski. *Bulletin of the Belgian Mathematical Society sér. B* **44** (1992) pp 207-214.
- [13] A Semantical Characterisation of the well-typed Formulæ of λ -calculus. *Theoretical Computer Science* **110**, (1993) 405-418.
- [14] Church-Oswald models for Set Theory. in: *Logic, Meaning and Computation: essays in memory of Alonzo Church*, Synthese library **305**. Kluwer, Dordrecht, Boston and London 2001.
- [15] Why Set theory without the axiom of foundation? *Journal of Logic and Computation*. **4**, number 4 (August 1994) pp. 333-335.

- [16] Weak Systems of Set Theory Related to HOL. (Invited talk given at the 1994 meeting of HUG) HUG94, Springer lecture notes in Computer Science **859** pp 193-204.
- [17] (with C.M. Rood.) Sethood and situations. *Computational Linguistics*. **22**, (1996) pp 405-408.
- [18] Sixty years of NF *The American Mathematical Monthly* **104** no. 9 (November 1997), pp. 838-845. (Reprinted in Follesdal, ed: Philosophy of Quine, V. Logic, Modality and Philosophy of Mathematics) Taylor-and-Francis 2001.
- [19] Games Played on an Illfounded Membership Relation. in *A Tribute to Maurice Boffa* ed Crabbé, Point, and Michaux. (Supplement to the December 2001 number of the *Bulletin of the Belgian Mathematical Society*)
- [20] ZF + “Every set is the same size as a wellfounded set” *Journal of Symbolic Logic* **58** (2003) pp 1-4.
- [21] (with John Truss) The illfoundedness of the “set of wellordered subsets of” relation. *Journal of Symbolic Logic* **68** (2003) pp 879–884.
- [22] Better-quasi-orderings and coinduction, *Theoretical Computer Science*, **309**, Issues 1-3, 2 December 2003, pp. 111-123.
- [23] Finite-to-one maps. *Journal of Symbolic Logic* **68** (dec 2003) pp 1251-1253.
- [24] AC fails in the natural analogues of L and the cumulative hierarchy that model the stratified fragment of ZF. (This was my invited talk for the AMS-MAA joint meeting at Baltimore) in *Contemporary Mathematics* **36** 2004.
- [25] The Modal Aether in: Intensionality ed R. Kahle. *Lecture Notes in Logic* **22**, A.K. Peters, Wellesley, Mass, USA 2005 pp 1-19
- [26] The Significance of Yablo’s paradox without self-reference. *Logique et Analyse* **185-188** (2004) pp 461-2.
- [27] Asynchronous Games. *Proceedings of the 2004 Knowledge and games (KAG) meeting in Liverpool*.
- [28] Article on NF for the *Stanford Online Encyclopædia of Philosophy*.
- [29] Permutations and Wellfoundedness: the True Meaning of the Bizarre Arithmetic of Quine’s NF. *Journal of Symbolic Logic* **71** (2006) pp 227-240.
- [30] The Axiom of Choice and Inference to the Best Explanation. *Logique et Analyse* **194**, 2006 pp 191–197.
- [31] Deterministic and Nondeterministic Strategies for Hintikka Games in First-order and Branching-quantifier Logic. *Logique et Analyse* **195** 2006 pp 265-9.
- [32] (With John Truss) Ramsey’s theorem and König’s Infinity Lemma. Now online in *Archive for Mathematical Logic*.
- [33] A Note on Paradoxes in Ethics. in *Paradox: Logical, Cognitive and Communicative Aspects*. ed Skilters, Eklund, Jónsson and Wiegand, University of Latvia 2006. pp 135-137.
- [34] Erdős-Rado without choice. *Journal of Symbolic Logic* **72**, 2007, pp. 897-900.
- [35] (with Olivier Esser). Relaxing Stratification. *Bull. Belg. Math. Soc. Simon Stevin* **14** (2007), pp. 247-258.
- [36] Implementing Mathematical Objects in Set theory. *Logique et Analyse* **50** No.197 (2007)
- [37] Sharvy’s Lucy and Benjamin puzzle. *Studia Logica* **90** (2008) pp 249–256.
- [38] The Iterative Conception of Set. *Review of Symbolic Logic*. **1** (2008) pp 97-110.¹

¹This was voted one of the ten best philosophy articles or 2008 by The Philosophers’ Annual.

- [39] (with Nathan Bowler) Normal Subgroups of Infinite Symmetric Groups, with an Application to Stratified Set Theory. *Journal of Symbolic Logic* **74** (2009) pp 17–26.
- [40] Buddhism in Logic and Analytic Philosophy. Preface to “Pointing at the Moon”—the proceedings of BILAP, (Buddhism in Logic and Analytic Philosophy) Oxford University Press 2009 (see www.dpmms.cam.ac.uk/~tf/BILAP.html).
- [41] A Tutorial on Constructive NF, in the NF 70th anniversary volume *Cahiers du Centre de Logique* **16** 2009. pp 137–171
- [42] Permutation methods in NF and NFU (with Randall Holmes) in the NF 70th anniversary volume *Cahiers du Centre de Logique* **16** 2009 pp 33–76.
- [43] Paris-Harrington in an NF context, in OHYAST (100 years of axiomatic set theory) *Cahiers du Centre de Logique* 2010 **17** pp 97–109.

Articles in press

- [44] Identity and Existence of Emergent Objects. (to appear in the Proceedings of the Brussels 2007 conference on Identity and Existence.)
- [45] “Alternative Set Theories” (in collaboration with Randall Holmes and Thierry Libert) in volume 6 (“Sets in the Twentieth Century”) of the Handbook of the History of Logic, to be published in 11 volumes by Elsevier/North-Holland. It is edited by Dov Gabbay and John Woods. Akihiro Kanamori is co-editor of volume 6.
- [46] Editorial Introduction to Special Number of Logique et Analyse on Logic and Rhetoric. 2010
- [47] NF at (nearly) 75. In the Special Quine number of Logique et Analyse, edited by Cresswell and Rini. 1010 pp xx–xx
- [48] (with Thierry Libert) An Order-Theoretic account of some Set-theoretical paradoxes *Notre Dame Journal of Formal Logic*.

Unpublished papers under submission

- [49] Yablo’s Paradox and the Omitting Types Theorem for Propositional Logic, submitted to Logique et Analyse

Translations, Commentaries and Extended Reviews

- [1] From Dedekind to Gödel: Essays in the Development of the Foundations of Mathematics *Physis* 1997.
- [2] Booth and Ziegler: “Finsler Set Theory: Platonism and Circularity” *Studia Logica* 1997.
- [3] Barwise, J. and Moss, L. “Vicious Circles” *The Computer Journal* **40** (1998) pp 61-63.
- [4] Hintikka, K. J. J. Selected papers vol 3: History and Philosophy of Logic (1999) **20** p 132.
- [5] Pitts-Dybjer: Semantics and Logics of Computation *Studia Logica*.
- [6] Translation of Specker, E.P. Dualität (Dialectica, 1957) with a commentary, in Føllesdal, ed: Philosophy of Quine, **4**. Logic, Modality and Philosophy of Mathematics pp 7-16. Taylor-and-Francis 2001.
- [7] Kurt Gödel and the Riddle of the Nile, *New Scientist*, Nov 25, 2000 **168** (2266): 54-54.

- [8] Luciano Floridi: *Philosophy and Computing: an introduction*. Times Literary Supplement (August 11, 2000), 5080:27.
- [9] Annotated translation of Jean Coret: *Sur les cas stratifiés du schema de remplacement*. Published electronically on <http://www.logic-center.be/Publications/Bibliotheque/default.html>
- [10] Annotated translation of Roland Hinnion's Ph.D thesis from 1976 "Sur La Théorie des ensembles de Quine". Published electronically on <http://www.logic-center.be/Publications/Bibliotheque>