

JOURNAL OF

Functional Programming

VOLUME 5 PART 2 APRIL 1995

CAMBRIDGE UNIVERSITY PRESS



EDITOR-IN-CHIEF

Professor Philip Wadler, Department of Computing Science, University of Glasgow, Glasgow G12 8QQ, UK, wadler@dcs.glasgow.ac.uk

EDITORS

Professor Henk Barendregt, Department of Computer Science, Catholic University Nijmegen, Toernooiveld 1, NL-6525 ED Nijmegen, The Netherlands, henk@cs.kun.nl

Professor Paul Hudak, Department of Computer Science, Yale University, New Haven, CT 06520, USA, hudak@yale.edu

Professor John Hughes, Department of Computer Sciences, Chalmers University of Technology, S-412 96 Göteborg, Sweden, rjmh@cs.chalmers.se

Professor Simon L. Peyton Jones, Department of Computing Science, University of Glasgow, Glasgow G12 8QQ UK, simonpj@dcs.glasgow.ac.uk

EDITORIAL ASSISTANT

Nasreen Ahmad, Department of Computing Science, University of Glasgow, Glasgow G12 8QQ, UK, nasreen@dcs.glasgow.ac.uk

EDITORIAL BOARD

Arvind, MIT Lab for Computer Science, 545 Technology Square, Cambridge MA 02139, USA

Lennart Augustsson, Department of Computer Science, Chalmers University of Technology, S-412 96 Göteborg, Sweden

Richard S. Bird, Oxford University Computing Laboratory, Programming Research Group, 8-11 Keble Road, Oxford OX1 3QD, UK

F. Warren Burton, Department of Computer Science, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada

Luca Cardelli, Digital Systems Research Center, 130 Lytton Avenue, Palo Alto, CA 94301, USA

Pierre-Louis Curien, CNRS-LIENS, Ecole Normale Supérieure, 45 rue d'Ulm, F-75230 Paris, France

Matthias Felleisen, Department of Computer Science, Rice University, PO Box 1892, Houston, TX 77251-1892, USA

Chris Hankin, Department of Computing Science, Imperial College, 180 Queen's Gate, London SW7 2BZ, UK

Robert Harper, School of Computer Science, Carnegie Mellon University, Pittsburgh PA 15213-3890, USA

Thomas Johnsson, Department of Computer Science, Chalmers University of Technology, S-412 96 Göteborg, Sweden

Mark Jones, Department of Computer Science, University of Nottingham, Nottingham NG7 2RD, UK

Neil D. Jones, DIKU, Universitetsparken 1, DK-2100 Copenhagen Ø, Denmark

John Launchbury, Oregon Graduate Institute, PO Box 91000, Portland, OR 97291-1000, USA

John C. Mitchell, Department of Computer Science, Margaret Jacks Hall, Stanford University, Stanford CA 94305-2140, USA

John T. O'Donnell, Department of Computing Science, University of Glasgow, Glasgow G12 8QQ, UK

Colin Runciman, Department of Computer Science, University of York, Heslington, York YO1 5DD, UK

Mads Tofte, Department of Computer Science, Universitetsparken 1, DK-2100 Copenhagen, Denmark

Mitchell Wand, College of Computer Science, 169 Cullinane Hall, Northeastern University, Boston MA 02115, USA

John H. Williams, IBM Almaden Research Center, K53/803, 650 Harry Road, San Jose, CA 95120-6099, USA

Mike Williams, Ericsson Infocom Consultants AB, Erlang Systems Division, Box 1153, S-164 22 Kista, Sweden

SUBSCRIPTIONS

Journal of Functional Programming (ISSN: 0956-7968) is published quarterly in January, April, July and October. The subscription price (excluding VAT) of Volume 5, 1995, is £90 net (USA, Canada and Mexico US\$156) post free; single parts cost £25 net (USA, Canada and Mexico US\$43) plus postage. Four parts form a volume. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, or in the USA, Canada and Mexico to Cambridge University Press, Journals Department, 40 West 20th Street, New York, NY 10011-4211, USA. Copies of the journal for subscribers in the USA, Canada and Mexico are sent by air to New York to arrive with minimum delay. Second class postage paid at New York, NY and at additional mailing offices.

Japanese prices for institutions (including ASP delivery) are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan.

Postmaster: send address changes in USA, Canada and Mexico to *Journal of Functional Programming*, Cambridge University Press, 110 Midland Avenue, Port Chester, New York, NY 10573-4930, USA.

Claims for missing issues should be made immediately on receipt of the subsequent issue.

© Cambridge University Press 1995