# The knowledge engineering review

VOLUME 8 NUMBER 1 MARCH 1993

## Cambridge University Press

## The knowledge engineering review

Dr John Fox, Imperial Cancer Research Fund, London

NORTH AMERICAN EDITOR Dr Peter Jackson, Clarkson University, USA

EDITOR

EDITORIAL BOARD	
Alain Bonnet	Ecole Nationale, France
D. Navin Chandra	Carnegie Mellon University, USA
Dominic Clark	Imperial Cancer Research Fund, UK
W. Clancey	Institute for Research on Learning, USA
Paul Cohen	University of Massachusetts, USA
R. Davis	Massachusetts Institute of Technology, USA
Mark Drummond	NASA Ames Research Center, USA
Peter Friedland	NASA Ames Research Center, USA
Dov Gabbay	Imperial College, UK
Sture Hägglund	Linköping University, Sweden
Peter Hammond	Imperial Cancer Research Fund, UK
Frank van Harmelen	University of Amsterdam, The Netherlands
Steve Laufmann	U S WEST Advanced Technologies, USA
J. P. Laurent	University of Savoy, France
Rainer Manthey	University of Bonn, Germany
Elaine Rich	Microelectronics and Computer Corporation, USA
N. Shadbolt	University of Nottingham, UK
Bill Sharpe	Hewlett Packard Labs, UK
Barry Silverman	The George Washington University, USA
Madan Singh	University of Manchester, UK
Luc Steels	Free University of Brussels, Belgium
Richard Susskind	Masons, Solicitors, UK
Austin Tate	University of Edinburgh AI Applications Institute, UK
Michael Wellman	University of Michigan, USA

### The Knowledge Engineering Review: Publication Policy

The Knowledge Engineering Review has been established to provide a general source of information and analysis in all areas relevant to research and development in knowledge based systems and applied artificial intelligence. The editors wish to encourage careful preparation of original papers analysing developments in the field. In particular we wish to see tutorial and survey articles, and commentary, criticism and debate. Primary research papers on specialised technical topics are unlikely to be appropriate but research papers on broad topics, such as development methodology or general evaluations of tools and techniques, are of interest. Descriptions of specific projects or particular computer systems will be considered if their presentation draws out general issues in the design, implementation or impact of knowledge based systems.

C Cambridge University Press 1993

#### Copying

This journal is registered with the Copyright Center, 27 Congress St., Salem, Mass. 01970. Organisations in the USA are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$05.00. This consent does not extend to multiple copy for promotional or commercial purposes. Code 0269–8889/92 \$5.00+.00.

FOR ALL OTHER USE, permission should be sought from the Cambridge or New York offices of the Cambridge University Press.

THE KNOWLEDGE ENGINEERING REVIEW (ISSN 0269-8889) is published every three months in March, June, September and December. Four parts form a volume.

ORDERS, which must be accompanied by payment, should be sent to any bookseller or subscription agent, or direct to Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU. Subscriptions in the USA or Canada should be sent to Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211. The subscription price of volume 7, 1992 is £79.00 (US\$145.00 in the USA and Canada) for institutions; £48.00 (US\$80 in the USA and Canada) for individuals; including postage; separate parts cost £21.00 (US\$38.00 in the USA and Canada) plus postage. Second class postage paid at New York, NY, and at additional mailing offices. POSTMASTER: send address changes in USA and Canada to The Knowledge Engineering Review, Cambridge University Press, 110 Midland Avenue, Port Chester, New York, NY 10573-9864.

CLAIMS for missing issues can only be considered if made immediately after receipt of the subsequent issue. BACK VOLUMES: Volumes 1–7 are available from Cambridge University Press.

ADVERTISING: Details of advertising in The Knowledge Engineering Review may be obtained from the publisher.