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Edited by G. Goos and J. Hartmanis

Advisory Board: W. Brauer D. Gries J. Stoer

J. W. de Bakker W.-P. de Roever
G. Rozenberg (Eds.)

# A Decade of Concurrency

## Reflections and Perspectives

REX School/Symposium
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Series Editors

Gerhard Goos
Universität Karlsruhe
Postfach 69 80
Vincenz-Priessnitz-Straße 1
D-76131 Karlsruhe, Germany

Juris Hartmanis
Cornell University
Department of Computer Science
4130 Upson Hall
Ithaca, NY 14853, USA

Volume Editors

J. W. de Bakker
Centre for Mathematics and Computer Science
P. O. Box 4079, 1009 AB Amsterdam, The Netherlands

W.-P. de Roever
Institute of Computer Science and Practical Mathematics II
Christian-Albrechts-Universität zu Kiel
Preußerstraße 1-9, D-24105 Kiel, Germany

G. Rozenberg
Department of Computer Science, Leiden University
P. O. Box 9512, 2300 RA Leiden, The Netherlands

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# Preface

The REX School/Symposium 'A Decade of Concurrency - Reflections and Perspectives' was the final event of a ten year period of cooperation between three Dutch research groups working on the foundations of concurrency. Ever since its inception in 1983, the goal of the project has been to contribute to the crossfertilization between formal methods from the fields of syntax, semantics and proof theory, aimed at an improved understanding of the nature of parallel computing.

The project was initially known as LPC - for *Landelijk Project Concurrency* - and funded by the Netherlands Research Foundation for Computer Science SION. From 1988 onwards, the project was baptized REX - Research and Education in Concurrent Systems - and supported by the Dutch NFI (*Nationale Faciliteit Informatica*) programme.

LPC and REX have from the beginning spent a major effort on the dissemination of methods and results from the forefront of concurrency research in Europe and, to a somewhat lesser extent, the USA.

The 1993 School/Symposium was preceded by the following six schools or workshops

1985 *Current Trends in Concurrency*
LNCS 224

1988 *Linear Time, Branching Time and Partial Order in Logics and Models for Concurrency*
LNCS 354

1989 *Stepwise Refinement of Distributed Systems - Models, Formalisms, Correctness*
LNCS 430

1990 *Foundations of Object-Oriented Languages*
LNCS 489

1991 *Real-Time: Theory in Practice*
LNCS 600

1992 *Semantics: Foundations and Applications*
LNCS 666

In addition to these schools and workshops, LPC/REX has sponsored numerous further activities in concurrency research. We mention here

- Ph.D. grants
  Five Ph.D. theses have been or will soon be completed:
  J.N. Kok *Semantic Models for Parallel Computation in Data Flow, Logic and Object-Oriented Programming*
  R.L.C. Koymans *Specifying Message Passing and Time-Critical Systems with Temporal Logic*

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|---|---|
| N.W. Keesmaat | *Vector Controlled Concurrent Systems* |
| P.W. Hoogers | *Behavioural Aspects of Petri Nets* |
| F.C. van Breugel | *Topological Models in Comparative Semantics* |

- Visiting professors
  About fifteen scientists have visited the LPC/REX sites for periods ranging from one month to a year. In addition, a host of concurrency researchers have participated in LPC/REX meetings during shorter visits.

- International collaboration
  We have organized about ten joint meetings with the French C3 and British Alvey/FACS programmes. We furthermore worked together with several ESPRIT projects, e.g. in initiating the series of PARLE conferences.

- National meetings
  Close to one hundred seminars, working group meetings, concurrency days and similar events have been held in the years 1984-1993.

The official start of the LPC project took place on March 16, 1984. As very last activity of REX, the School/Symposium 'Decade of Concurrency - Reflections and Perspectives', was organized at the Conference Centre De Leeuwenhorst, Noordwijkerhout, June 1-4, 1993.

The material presented in this volume was prepared by the lecturers (and their coauthors) after the meeting took place - in this way the papers also reflect the discussions that took place during the school. We were fortunate to enjoy the cooperation of such an excellent group of lecturers, worthy of the demanding task of reflecting on some of the central achievements in the area of concurrency, and providing a perspective on further developments.

We gratefully acknowledge the financial support for the School from the NFI programme. Leiden University and Eindhoven University of Technology sponsored the School in a number of ways, for which we thank in particular Dr. J.M.J. Coremans and Dr. A. Heijligers.

The CWI, Amsterdam, was responsible for the technical organization of the meeting. The local organization was in the capable hands of Franck van Breugel, Mieke Bruné and Frans Snijders.

The LPC/REX directors - the editors of the present volume - look back both with pride and with some nostalgia on an exciting decade of concurrency research. We most warmly thank all our colleagues who have participated in these events and contributed to their success.

February 1994 J.W.de Bakker, W.P. de Roever, G. Rozenberg

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