

# Lecture Notes in Computer Science

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# Term Rewriting

French Spring School of Theoretical Computer Science  
Font Romeux, France, May 17-21, 1993  
Advanced Course



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## Preface

This volume contains the proceedings of the French Spring School of Theoretical Computer Science held in Font Romeu in May 1993.

The 1993 school was devoted to rewriting in a broad sense. Rewriting is now an important subfield of computer science, relating to many other areas such as formal languages, models of concurrency, tree automata, functional programming languages, constraints, symbolic computations and automated deduction. All these trends were represented at Font Romeu, and invited to contribute to this volume.

The school was organized by Hubert Comon, Jean-Pierre Jouannaud, Jacques Sakarovitch, and Gérard Senizergues for scientific matters, with the help of Patrick Sallé and Colette Ravinet for the local arrangements. There were 19 presentations at the school, among which two were already published, and two others were not submitted in time. Most papers survey a particular area of term or string rewriting, but some contributions contain new technical material. The first two lectures, by Jean-Pierre Jouannaud and Nachum Dershowitz, are introductory surveys on term rewriting. The next two, by Gerard Lallement and Yuri Matiyasevich, are dedicated to word problems for Thue systems. The papers by Hélène Kirchner and Bruno Courcelle survey various extensions of rewriting to congruence classes of terms, graphs, etc. Gérard Senizergues and Max Dauchet explore the relationships between rewriting, grammars, and tree automata. Michael Bertold and Volker Diekert study rewriting techniques for trace languages. Robert Gilman and Philippe Le Chenadec investigate two different approaches to the use of rewriting techniques in group theory. Claude Marché relates rewriting techniques to Gröbner bases computations. Yves Lafont describes a very novel view of rewriting where the tree structure of terms is replaced by two-dimensional diagrams. Philippe Balbiani and Luis Fariñas del Cerro apply rewriting techniques to affine geometry. Finally, Jean-François Rey contributes to the resolution of an old conjecture for Burnside monoids.

We thank Maurice Nivat for inviting us to organize this school and suggesting that it should bring together term rewriting and string rewriting people at least. Although both communities are usually not attending the same events, they have a lot in common, and these days revealed many potential collaborations between them.

The school was sponsored by CNRS, PRC de Programmation, PRC Mathématiques et Informatique, Université de Paris-Sud, and Université Paris 6. We also thank the referees for their work.

Orsay, March 1995

Hubert Comon and Jean-Pierre Jouannaud

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