

Lecture Notes in Artificial Intelligence

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Javier Larrosa Barry O'Sullivan (Eds.)

# Recent Advances in Constraints

14th Annual ERCIM International Workshop  
on Constraint Solving  
and Constraint Logic Programming, CSCLP 2009  
Barcelona, Spain, June 15-17, 2009  
Revised Selected Papers

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# Preface

This volume contains the selected technical papers from the 2009 ERCIM Workshop on Constraint Solving and Constraint Logic Programming held on June 15th–17th, 2009 at the Technical University of Catalonia (UPC) in Barcelona, Spain. This event was run on behalf of the ERCIM Working Group on Constraints<sup>1</sup>. ERCIM, the European Research Consortium for Informatics and Mathematics, aims to foster collaborative work within the European research community and to increase co-operation with European industry. Leading research institutes from 18 European countries are members of ERCIM. The ERCIM Constraints working group aims to bring together ERCIM researchers that are involved in research on the subject of constraint programming and related areas.

Constraints have recently emerged as a research area that combines researchers from a number of fields, including artificial intelligence, programming languages, symbolic computing, and computational logic. Constraint networks and constraint satisfaction problems have been studied in artificial intelligence since the 1970s. Systematic use of constraints in programming emerged in the 1980s. The constraint programming process involves the generation of requirements (constraints) and the solution of these requirements, by specialised constraint solvers. Constraint programming has been successfully applied in numerous domains. Recent applications include computer graphics (to express geometric coherence in the case of scene analysis), natural language processing (construction of efficient parsers), database systems (to ensure and/or restore consistency of the data), operations research problems (like optimization problems), molecular biology (DNA sequencing), business applications (option trading), electrical engineering (to locate faults), circuit design (to compute layouts), etc. Current research in this area deals with various foundational issues, with implementation aspects and with new applications of constraint programming. The concept of constraint solving forms the central aspect of this research.

The 2009 workshop programme comprised invited talks from Robert Nieuwenhuis (UPC, Spain) and Helmut Simonis (UCC, Ireland). The main technical programme also comprised talks from many constraints researchers on current aspects of their research agendas.

We would like to sincerely thank Dolors Padrós (UPC) for her assistance in preparing for this event, as well as Robert Nieuwenhuis and Helmut Simonis for their invited talks. We would also like to thank our sponsors who provided the financial support necessary to make this event a success. Finally, we would like to sincerely thank the authors of papers, the speakers, and the attendees, for such an interesting and engaging programme.

Javier Larrosa  
Barry O’Sullivan

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<sup>1</sup> <http://wiki.ercim.org/wg/Constraints>

# Workshop Organization

CSCLP 2009 was organized by the ERCIM Working Group on Constraints.

## Workshop Chairs

Javier Larrosa	Technical University of Catalonia, Spain
Barry O'Sullivan	University College Cork, Ireland

## Additional Reviewers

Stefano Bistarelli	Ian Miguel
Hadrien Cambazard	Karen Petrie
François Fages	Luis Quesada
Ian Gent	Helmut Simonis
Emmanuel Hebrard	Armin Wolf
Alan Holland	Roie Zivan

## Invited Speakers

Robert Nieuwenhuis	Technical University of Catalonia, Spain
Helmut Simonis	University College Cork, Ireland

## Administrative Support

Dolors Padrós	Technical University of Catalonia, Spain
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