Table of Contents

Invited Papers

The Rough Guide to Constraint Propagation ............................... 1
  Krzysztof R. Apt

Non-binary Constraints ................................................... 24
  Christian Bessière

The Theory of Discrete Lagrange Multipliers for Nonlinear Discrete
Optimization ............................................................. 28
  Benjamin W. Wah and Zhe Wu

Regular Papers

Operational Equivalence of CHR Programs and Constraints .............. 43
  Slim Abdennadher and Thom Frühwirth

Automatic Generation of Constraint Propagation Algorithms for Small
Finite Domains ........................................................... 58
  Krzysztof R. Apt and Eric Monfroy

Excluding Symmetries in Constraint Based Search ......................... 73
  Rolf Backofen and Sebastian Will

On Forward Checking for Non-binary Constraint Satisfaction ............. 88
  Christian Bessière, Pedro Meseguer, Eugene C. Freuder and Javier Larrosa

Enforcing Arc Consistency on Global Constraints by solving subCSPs
on the Fly ...............................................................103
  Christian Bessière and Jean-Charles Régin

Exploiting Bipartiteness to Identify Yet Another Tractable Subclass
of CSP .................................................................118
  Marcus Bjäreland and Peter Jonsson

Towards a Complete Classification of Tractability in Point Algebras
for Nonlinear Time ....................................................129
  Mathias Broxvall and Peter Jonsson

A Meta-Heuristic Factory for Vehicle Routing Problems ..................144
  Yves Caseau, François Laburthe and Glenn Silverstein
Closure Functions and Width 1 Problems ............................... 159
  Victor Dalmau and Justin Pearson

An Overview of HAL .................................................... 174
  Bart Demoen, Maria García de la Banda, Warwick Harvey,
  Kim Marriott and Peter Stuckey

Cost-Based Domain Filtering ............................................ 189
  Filippo Focacci, Andrea Lodi and Michela Milano

Resource Allocation in Networks Using Abstraction and Constraint Satisfac-
tion Techniques .................................................. 204
  Christian Frei and Boi Faltings

Optimal Distributed Arc-Consistency .................................... 219
  Youssef Hamadi

The Goldilocks Problem ................................................. 234
  Tudor Hulubei and Eugene C. Freuder

Multistep Filtering Operators for Ordinary Differential Equations .... 246
  Micha Janssen, Yves Deville, and Pascal Van Hentenryck

A Framework for Constraint Programming Based Column Generation .... 261
  Ulrich Junker, Stefan E. Karisch, Niklas Kohl, Bo Vaaben, Torsten Fahle
  and Meinolf Sellmann

Improving a Heuristic Repair Method for Large-Scale School Timetabling Problems ................................................... 275
  Kazuya Kaneko, Masazumi Yoshikawa, and Yoichiro Nakakuki

Applying Constraint Programming to Protein Structure Determination ... 289
  Ludwig Krippahl and Pedro Barahona

Partition-Based Lower Bound for Max-CSP ................................. 303
  Javier Larrosa and Pedro Meseguer

Constraint Diagram Reasoning ........................................... 316
  Bernd Meyer

Automatic Generation of Music Programs ................................ 331
  François Pachet and Pierre Roy

Search Procedures and Parallelism in Constraint Programming .......... 346
  Laurent Perron
### Ensuring a Relevant Visiting Order of the Leaf Nodes during a Tree Search
Nicolas Preovic and Bertrand Neveu

### Tight Cooperation and its Application in Piecewise Linear Optimization
Philippe Refalo

### Arc Consistency for Global Cardinality Constraints with Costs
Jean-Charles Régis

### The Brézal Heuristic and Optimal Static Orderings
Barbara M. Smith

### A Fixpoint Definition of Dynamic Constraint Satisfaction
Timo Soininen, Esther Gelle and Ilkka Niemelä

### Solving Satisfiability Problems on FPGAs Using Experimental Unit Propagation
Takayuki Suyama, Makoto Yokoo, and Akira Nagoya

### On the Behavior and Application of Constraint Weighting
John Thornton and Abdul Sattar

### Simulated Annealing with Asymptotic Convergence for Nonlinear Constrained Global Optimization
Benjamin W. Wah and Tao Wang

### Poster Papers

**On SAT01 Problem**
Stanislav Busygin

**An Interval Constraint Approach to Handle Parametric Ordinary Differential Equations for Decision Support**
Jorge Cruz and Pedro Barahona

**CSPLib: A Benchmark Library for Constraints**
Ian P. Gent and Toby Walsh

**Validated Constraint Compilation**
Timothy J. Hickey and David K. Wittenberg

**Automated Theorem Proving with Disjunctive Constraints**
Ortrun Ibens
XII Table of Contents

Rewriting Numeric Constraint Satisfaction Problems for Consistency Algorithms .............................................................. 486
  Claudio Lottaz

Intelligent Domain Splitting for CSPs with Ordered Domains .............. 488
  Marius-Călin Silaghi, Djamila Sam-Haroud and Boi Faltings

Frequency Assignment for Cellular Mobile Systems Using Constraint Satisfaction Techniques .................................................. 490
  Makoto Yokoo and Katsutoshi Hirayama

Author Index ....................................................... 493
Principles and Practice of Constraint Programming - CP'99
5th International Conference, CP'99, Alexandria, VA, USA, October 11-14, 1999 Proceedings
Jaffar, J. (Ed.)
1999, XII, 504 p., Softcover
ISBN: 978-3-540-66626-4