

Contents

Session 1: Semantics I

- Soundness and Completeness of Partial Deductions for Well-Founded Semantics 1
Halina Przymusinska, Teodor Przymusinski, Hirohisa Seki

Session 2: Non-Resolution Theorem Proving I

- On Deductive Planning and the Frame Problem 13
Steffen Hölldobler (invited lecture)
- On Resolution in Fragments of Classical Linear Logic 30
James Harland, David Pym
- A Procedure for Automatic Proof Nets Construction 42
Didier Galmiche, Guy Perrier

Session 3: Constraints

- Free Logic and Infinite Constraint Networks 54
James Bowen, Dennis Bahler

Session 4: Data Bases and Knowledge Bases

- Towards Probabilistic Knowledge Bases 66
Beat Wüthrich
- Two-Level Grammar: A Functional/Logic Query Language for
Database and Knowledge-Base Systems 78
Barrett R. Bryant, Aiqin Pan
- Extending Deductive Database Languages by Embedded Implications 84
Burkhard Freitag

Session 5: Resolution Theorem Proving

Controlling Redundancy in Large Search Spaces: Argonne-Style Theorem Proving Through the Years	96
<i>Ewing L. Lusk (invited lecture)</i>	
Resolution for Many-Valued Logics	107
<i>Matthias Baaz, Christian G. Fermüller</i>	
An Ordered Theory Resolution Calculus	119
<i>Peter Baumgartner</i>	
Application of Automated Deduction to the Search for Single Axioms for Exponent Groups	131
<i>William McCune, Larry Wos</i>	

Session 6: Theorem Proving and Complexity

Elementary Lower Bounds for the Lengths of Refutations	137
<i>Hai-Ping Ko, Mark E. Nadel</i>	
Shortening Proofs by Quantifier Introduction	148
<i>Uwe Egly</i>	

Session 7: Implementation Aspects

Reform Compilation for Nonlinear Recursion	160
<i>Håkan Millroth</i>	
Pruning Infinite Failure Branches in Programs with Occur-Check	172
<i>Ulrich Neumerkel</i>	

Session 8: Logical Frameworks

The Use of Planning Critics in Mechanizing Inductive Proofs	178
<i>Andrew Ireland</i>	
$\lambda\mu$ -Calculus: An Algorithmic Interpretation of Classical Natural Deduction	190
<i>Michel Parigot</i>	

Building Proofs by Analogy via the Curry-Howard Isomorphism	202
<i>Thierry Boy de la Tour, Christoph Kreitz</i>	

On the Use of the Constructive Omega-Rule Within Automated Deduction	214
<i>Siani Baker, Andrew Ireland, Alan Smaill</i>	

Session 9: Parallel Theorem Proving and Logic Programming

OR-Parallel Theorem Proving with Random Competition	226
<i>Wolfgang Ertel</i>	

Parallel Computation of Multiple Sets-of-Support	238
<i>Christian B. Suttner</i>	

Towards Using the Andorra Kernel Language for Industrial Real-Time Applications	250
<i>Bogumil Hausman</i>	

Session 10: Unification and Equality I

Unification in a Combination of Equational Theories with Shared Constants and its Application to Primal Algebras	261
<i>Christophe Ringeissen</i>	

Non-Clausal Resolution and Superposition with Selection and Redundancy Criteria	273
<i>Leo Bachmair, Harald Ganzinger</i>	

Relating Innermost, Weak, Uniform and Modular Termination of Term Rewriting Systems	285
<i>Bernhard Gramlich</i>	

Session 11: Semantics II

A Two Step Semantics for Logic Programs with Negation	297
<i>Maurizio Gabbrielli, Giorgio Levi, Daniele Turi</i>	

Generalized Negation as Failure and Semantics of Normal Disjunctive Logic Programs	309
<i>Chitta Baral</i>	

General Model Theoretic Semantics for Higher-Order Horn Logic Programming	320
<i>Mino Bai, Howard A. Blair</i>	

Session 12: Extensions of Logic Programming

Disjunctive Deductive Databases	332
<i>José Alberto Fernández, Jack Minker</i> (invited lecture)	

Netlog — A Concept Oriented Logic Programming Language	357
<i>Alexander Voinov</i>	

From the Past to the Future: Executing Temporal Logic Programs	369
<i>Michael Fischer, Richard Owens</i>	

Session 13: Non-Resolution Theorem Proving II

Computing Induction Axioms	381
<i>Christoph Walther</i>	

Session 14: Specification and Verification

Consistency of Equational Enrichments	393
<i>Valentin Antimirov, Anatoli Degtyarev</i>	

A Programming Logic for a Verified Structured Assembly Language	403
<i>Paul Curzon</i>	

Session 15: Unification and Equality II

The Unification of Infinite Sets of Terms and its Applications	409
<i>Gernot Salzer</i>	

Unification in Order-Sorted Type Theory	421
<i>Michael Kohlhase</i>	
Infinite, Canonical String Rewriting Systems Generated by Completion	433
<i>Andrea Sattler-Klein</i>	
 System Descriptions	
Spes: A System for Logic Program Transformation	445
<i>Francis Alezandre, Khaled Bsaïes, Jean Pierre Finance, Alain Quéré</i>	
Linear Objects: A Logic Framework for Open System Programming	448
<i>Jean-Marc Andreoli, Remo Pareschi</i>	
ISAR: An Interactive System for Algebraic Implementation Proofs	451
<i>Bernhard Bauer, Rolf Hennicker</i>	
Mathpert: Computer Support for Learning Algebra, Trig and Calculus	454
<i>Michael Beeson</i>	
MegaLog — A Platform for Developing Knowledge Base Management Systems	457
<i>Jorge Bocca, Michael Dahmen, Michael Freeston</i>	
SPIKE, an Automatic Theorem Prover	460
<i>Adel Bouhoula, Emmanuel Kounalis, Michaël Rusinowitch</i>	
An Application to Teaching in Logic Course of ATP Based on Natural Deduction	463
<i>Li Dafa</i>	
A Generic Logic Environment	466
<i>Mark Dawson</i>	
ElipSys. A Parallel Programming System Based on Logic	469
<i>Michel Dorochevsky, Liang-Liang Li, Mike Reeve, Kees Schuerman, André Véron</i>	
Opium — A High Level Debugging Environment	472
<i>Mireille Ducassé</i>	

An Inductive Theorem Prover Based on Narrowing	475
<i>Ulrich Fraus, Heinrich Hussmann</i>	
A Cooperative Answering System	478
<i>Terry Gaasterland, Parke Godfrey, Jack Minker, Lev Novik</i>	
MIZ-PR: A Theorem Prover for Polymorphic and Recursive Functions	481
<i>Javier Leach, Susana Nieva</i>	
ProPre. A Programming Language with Proofs	484
<i>Pascal Manoury, Michel Parigot, Marianne Simonot</i>	
FRIENDLY-WAM: An Interactive Tool to Understand the Compilation of Prolog	487
<i>Julio García Martín, Juan José Moreno-Navarro</i>	
SEPIA: A Basis for Prolog Extensions	490
<i>Micha Meier</i>	
The External Database in SICStus Prolog	493
<i>Hans Nilsson</i>	
The KCM System: Speeding-up Logic Programming Through Hardware Support	496
<i>Jacques Noyé</i>	
Logician's Workbench	499
<i>Igor Romanenko</i>	
EUODHILOS: A General Reasoning System for a Variety of Logics	501
<i>Hajime Sawamura, Toshiro Minami, Kyoko Ohashi</i>	
The EKS-VI System	504
<i>Laurent Vielle, Petra Bayer, Volker Küchenhoff, Alexandre Lefebvre, Rainer Manthey</i>	
CHIP and Propia	507
<i>Mark Wallace, Thierry Le Provost</i>	