TECHNISCHE UNIVERSITÄT WIEN

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First-order Theorem Proving – FTP'98

2nd International Workshop on First-order Theorem Proving
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Preface

FTP'98 is the second in a series of workshops[1] intended to focus effort on First-order Theorem Proving as a core theme of automated deduction, and to provide a forum for presentation of recent work and discussion of research in progress. The topic of the workshop covers automated deduction in classical and non-classical logics, by resolution or tableaux; equational reasoning and term rewriting; constraint-based reasoning; unification algorithms and specialized decision procedures; complexity of theorem proving procedures; applications of first-order theorem provers to problems in artificial intelligence, verification, mathematics, as well as other areas.

The technical program of FTP'98 consists of three invited talks, 19 regular papers[2], and three position papers. These contributions mirror to a certain degree the current state of the field and allow to observe some trends.

Beyond validity and unsatisfiability. The main aim of first-order theorem proving was and still is to demonstrate the validity or unsatisfiability of formulas, by more and more sophisticated methods. Within the last years, however, the other side of the medal – falsifiability and satisfiability – also received growing attention. Though in general not terminating, theorem provers sometimes act as decision procedures on subclasses of first-order logic. In particular cases their output can be even used to extract finite representations of models or counter-examples.

Beyond classical logic. Methods developed for classical first-order logic are increasingly extended to cope with many-valued and modal logics. One reason for this trend is the need in AI for more expressive logics to model real-world reasoning.

Beyond first-order logic. Though the invited speakers chose their topics independently of each other, all three concentrate more or less on links between first-order and higher-order logics. Melvin Fitting argues that to avoid paradoxes one has to move on to higher-order modal logics; Gilles Dowek shows that higher-order resolution can be regarded as first-order deduction modulo certain theories; and Alexander Leitsch proposes higher-order extensions to increase the expressiveness of model representation formalisms.

Many people contributed to make this workshop possible and we sincerely thank each of them. First of all, we would like to thank the members of the Program Committee and the eleven additional reviewers. Thanks to Franziska Gusel for carrying most of the organizational load. We are indebted to several sponsors for their financial and material support: *Insitut für Computersprachen* (Technische Universität Wien), the *Kurt Gödel Society*, and the *Bank Austria* (special thanks to Thomas Lahoda). Last but not least, we owe a lot to the steering committee, in particular to Maria Paola Bonacina and David Plaisted for their advice throughout all phases of the workshop.

Schloss Wilhelminenberg, Vienna, Austria — Ricardo Caferra
November 1998 — Gernot Salzer

[1] The first workshop, FTP'97, took place in October 1997 at RISC Linz, Schloss Hagenberg, Austria. Its proceedings appeared as technical report of RISC Linz and are electronically available under `http://www.logic.at/ftp97`.

[2] The program committee received 24 regular papers, of which 19 were accepted.

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Contents

Invited Talks

Automated theorem proving in first-order logic modulo:
on the difference between type theory and set theory 1
Gilles Dowek

Higher-order modal logic – a sketch 22
Melvin Fitting

Bertrand Russell, Herbrand's theorem, and the assignment statement 37
Melvin Fitting

Decision procedures and model building,
or How to improve logical information in ATP 50
Alexander Leitsch

Contributed Papers

Constraint contextual rewriting 65
Alessandro Armando and Silvio Ranise

How complex is a finite first-order sorted interpretation? 76
Thierry Boy de la Tour

A further and effective liberalization of the δ-rule in free variable semantic tableaux .. 86
Domenico Cantone and Marianna Nicolosi Asmundo

A new fast tableau-based decision procedure for an unquantified fragment
of set theory 97
Domenico Cantone and Calogero G. Zarba

A partial instantiation based first order theorem prover 106
Vijay Chandru, John Hooker, Gabriela Rago, and Anjul Shrivastava

Interpretation of a Mizar-like logic in first-order logic 116
Ingo Dahn

An $\mathcal{O}((n \cdot \log n)^3)$-time transformation from Grz into decidable fragments of classical
first-order logic 127
Stephane Demri and Rajeev Gore

Implicational completeness of signed resolution 135
Christian Fermüller

An equational re-engineering of set theories 142
Andrea Formisano and Eugenio Omodeo

Issues of decidability for description logics in the framework of resolution 152
Ullrich Hustadt and Renate A. Schmidt

Upper bound on the height of terms in proofs with cuts 162
Boris Konev

Proof generalization and function introduction 172
Nicolas Peltier

Extending decidable clause classes via constraints 182
Reinhard Pichler

Completeness and redundancy in constrained clause logic 193
Reinhard Pichler

Effective properties for some first order intuitionistic modal logics 204
Aida Pliuškevičienė

Hidden congruent deduction 213
Grigore Rosu and Joseph Goguen

Resolution-based theorem proving for SHn-logics 224
Viorica Sofronie-Stokkermans

A new resolution calculus for the infinite-valued propositional logic of Łukasiewicz ... 234
Hubert Wagner

Full first-order sequent and tableau calculi with preservation of solutions and the liberalized δ-rule but without skolemization 244
Claus-Peter Wirth

Position Papers

Theorem proving strategies: a search oriented taxonomy 256
Maria Paola Bonacina

Computational representations of models of first-order formulas 260
Robert Matzinger

Verifying textbook proofs 262
Claus Zinn