Preface

The role of first-order theorem proving as a core theme of automated deduction has been recognized in artificial intelligence since its very beginning, more than forty years ago. Although there are many other logics developed and used in AI, deduction systems based on first-order theorem proving recently have achieved considerable successes and even mention in the general press. It was a first-order theorem prover which first proved the Robbins algebra conjecture, and thus reached the New York Times Science section. Geometry theorem proving and its application have obtained impressive results. And not only in proving mathematical theorems, but also in various other disciplines of AI, first-order theorem proving has made substantial progress. In planning, for example, it turns out that propositional theorem provers are able to outperform special-purpose planning systems on some problems. This is remarkable, since it was considered folklore that planning required specialized algorithms. Similar developments can be observed in the field of model-based diagnosis. In knowledge representation, simple techniques from resolution or tableaux systems can be used to build kernel systems.

Over the years, automated deduction has grown to affect also other fields in computer science. On one hand, automated deduction is a fundamental study of mechanical forms of logical reasoning, and as such, it is part of the general investigation of what we can do with computing machines. It has contributed to some extent to the foundations of most of computing with symbolic information, including logic and functional programming, constraint problem solving, computer algebra (e.g., Gröbner basis), and deductive databases. On the other hand, automated deduction has direct applications, such as hardware and software verification, where automated provers are used as tools for the solution of sub-problems. In a nutshell, automated deduction is at the intersection of artificial intelligence and computational logic, and in turn first-order theorem proving is at the heart of automated deduction.

Having all this in mind, the workshop FTP97 aims at focusing effort on first-order theorem proving by providing a forum for the presentation of recent work and work in progress. We received forty-four submissions, out of which the Program Committee selected twenty-five contributions, including topics in equational reasoning, resolution, model elimination and tableaux-based systems, model generation, and hardware verification. The invited talk by Bruno Buchberger, on "The Theorema Project: An Overview," completes the technical program. We thank Bruno Buchberger for hosting the workshop as a back-to-back event with CP97, the Third International Conference on Principles and Practice of Constraint Programming, at the Schloss Hagenberg.

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 thirty-one additional reviewers, who handled the forty-four submissions in two weeks. Thanks to Gernot Salzer for his work as the Local Arrangements Chair, for helping with publicity, and for putting this report together. Thanks to Betina Curtis for her help with registration and on-site organization. Special thanks go to the Steering Committee, which includes those persons who supported the idea of an FTP workshop since the beginning.

Maria Paola Bonacina and Ulrich Furbach (Program Co-Chairs)
David A. Plaisted (Chair of the Steering Committee)
Schloss Hagenberg, Austria
October 1997

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