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Automated Reasoning with Analytic Tableaux and Related Methods

International Conference, TABLEAUX 2000
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Proceedings

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Foreword

This volume contains the main papers presented at the International Conference on Analytic Tableaux and Related Methods (TABLEAUX 2000) held on July 3–7, 2000 in St Andrews, Scotland. This conference succeeded other meetings on the same topic held in Lautenbach (1992), Marseille (1993), Abingdon (1994), St Goar (1995), Terrasini (1996), Pont-à-Mousson (1997), Oisterwijk (1998) and Saratoga Springs (1999).

Tableaux and related methods, such as Gentzen calculi, are convenient and effective for automating deduction not just in classical logic but also in various non-standard logics. Examples taken from this meeting alone include temporal, description, non-monotonic, tense, modal, epistemic, fuzzy and intuitionistic logics. Areas of application include verification of software and computer systems, deductive databases, knowledge representation and system diagnosis. The conference brought together researchers interested in all aspects – theoretical foundations, implementation techniques, systems development, experimental comparison and applications – of the automation of reasoning by means of tableaux or related methods.

Each research paper was formally evaluated by three referees, mainly members of the programme committee. From the 42 submissions received, 23 original *research papers* and 2 original *system descriptions* were chosen by the programme committee for presentation at the conference and for inclusion in these proceedings, together with the 3 invited lectures. Also included are a summary of the non-classical systems *Comparison* (*TANCS*), descriptions of the Comparison entries, and the titles and authors of *position papers* and *tutorials*, which were also presented at the conference. Eight systems designers expressed interest for *TANCS*: two abandoned submission plans because of inefficiency and one because of unsoundness. All submitted systems were installed (a most painful process) and checked for soundness: submitted data were sampled for coherence.

Acknowledgements First, I thank my colleagues Andrew Adams, Helen Bremner, Martin Dunstan, Brian McAndie and Joy Thomson, who helped with secretarial and technical aspects of the conference, Second, I thank my students Hanne Gottliebsen and Mairead Ní Eineachain for their practical help. Third, I thank the PC members and other referees for their tireless work reviewing papers. In particular, I thank Fabio Massacci (for his energetic organisation of the Comparison) and Neil Murray (for helpful advice and information about last year's meeting). Fourth, I thank Peter Schmitt for his encouragement to organise the meeting at St Andrews and for his guiding role in the development of the TABLEAUX series. Finally, I thank the authors (e.g. for their patience with my strictures about style and typography), the speakers, the tutorial organisers, the Comparison entrants, and, last but not least, the sponsors.

April 2000 Roy Dyckhoff

Previous Tableaux Workshops/Conferences

1992	Lautenbach, Germany	1993	Marseille, France
1994	Abingdon, England	1995	St. Goar, Germany
1996	Terrasini, Italy	1997	Pont-à-Mousson, France
1998	Oisterwijk, The Netherlands	1999	Saratoga Springs, USA

Invited Speakers

Franz Baader	RWTH Aachen, Germany
Melvin Fitting	CUNY, New York City, U.S.A.
Alasdair Urquhart	Toronto University, Canada

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Roy Dyckhoff
University of St Andrews, St Andrews, Scotland

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J. Pitt	Imperial College, London, England
H. Wansing	Dresden University of Technology, Germany

Referees

Each submitted paper was refereed by three members of the programme committee. In some cases, they consulted specialists who were not on the committee. We gratefully mention their names.

Wolfgang Ahrendt
Alessandro Avellone
Vincent Balat
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Juergen Dix
Mauro Ferrari
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Ian Gent
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Renate Schmidt
Viorica Sofronie-Stokkermans
Alasdair Urquhart

Sponsors

British Logic Colloquium
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London Mathematical Society

Abstracts of Tutorials

The regular conference program included the presentation of 2 tutorials: details appear in the same volume as the "Position Papers" (see below).

Empirical Methods for Artificial Intelligence and Computer Science
Paul Cohen, Ian Gent and Toby Walsh

Rasiowa-Sikorski Deduction Systems: Foundations and Applications in CS Logics
Beata Konikowska

Position Papers

The regular conference program included the presentation of 8 short position papers. Informal proceedings containing these papers appeared as the internal scientific report "Position Papers, TABLEAUX 2000", School of Computer Science, University of St Andrews, St Andrews, Scotland.

How to find symmetries hidden in combinatorial problems.
Noriko H. Arai and Ryuji Masukawa

Labelled modal sequents.
Guido Governatori and Antonino Rotolo

Multiple sequent calculus for tense logics.
Andrzej Indrzejczak

Minimal model generation with factorization and constrained search.
Miyuki Koshimura, Megumi Kita and Ryuzo Hasegawa

Inference for non-Horn regular multiple-valued logics.
James J. Lu, Neil V. Murray and Erik Rosenthal

Termination in intuitionistic connection-driven search.
Arild Waaler

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Noriaki Yoshiura and Naoki Yonezaki

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Anna Zalewska

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