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Renate A. Schmidt · Cláudia Nalon (Eds.)

# Automated Reasoning with Analytic Tableaux and Related Methods

26th International Conference, TABLEAUX 2017  
Brasília, Brazil, September 25–28, 2017  
Proceedings

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# Preface

This volume contains the proceedings of the 26th International Conference on Automated Reasoning with Analytic Tableaux and Related Methods, held at the Universidade de Brasília (UnB) in Brasília, Brazil, during September 25–28, 2017. TABLEAUX is the main international conference at which research on all aspects – theoretical foundations, implementation techniques, systems development, and applications – of the mechanization of tableaux-based reasoning and related methods is presented.

TABLEAUX 2017 was co-located with the 11th International Symposium on Frontiers of Combining Systems (FroCoS 2017) and the 8th International Conference on Interactive Theorem Proving (ITP 2017), whose proceedings also appeared in the Lecture Notes in Artificial Intelligence Series of Springer (Volumes 10483 and 10499).

We received 27 submissions (35 abstracts) out of which 19 papers were accepted (including one system description). Four of these papers were accepted under conditions from the reviewers and the Program Committee. After an accelerated re-evaluation, all four papers were accepted and are included in the program. All submissions were subject to academic peer review by at least three reviewers. The selection criteria included accuracy and originality of ideas, clarity and significance of results, possible implementability, and quality of presentation. The reviewing and selection of the papers was the responsibility of the TABLEAUX 2017 Program Committee, which consisted of 35 members from 18 countries in America, Asia, Europe, and Oceania. In addition, 18 external reviewers were consulted.

TABLEAUX 2017 offered an interesting and diverse program, which, in addition to the technical papers, included six invited talks by leading experts: Carlos Areces on Tableau Calculus for Hybrid Xpath with Data, Wolfgang Bibel on A Vision for Automated Deduction Rooted in the Connection Method, Reiner Hähnle on Locally Abstract, Globally Concrete Semantics of Concurrent Programming Languages, Katalin Bimbó on The Perimeter of Decidability (with Sequent Calculi on the Inside), Jasmin Blanchette on Foundational (Co)Datatypes and (Co)Recursion for Higher-Order Logic, and Cezary Kaliszyk on Automating Formalization by Statistical and Semantic Parsing of Mathematics. The invited talks of Katalin Bimbó, Jasmin Blanchette, and Cezary Kaliszyk were joint with FroCoS and ITP. FroCoS contributed with two invited talks given by Cesare Tinelli and Renata Wassermann. Moa Johansson and Leonardo de Moura gave the invited talks for ITP. There was a shared poster session with FroCoS and ITP for the presentation of work in progress. Fifteen abstracts were accepted for presentation as short talks and posters.

This year marks the 25th anniversary of the TABLEAUX conference, a series of meetings which started with a workshop on Theorem Proving with Analytic Tableaux and Related Methods held in Lautenbach, Germany, in March 1992. Since then it has been organized on an annual basis; in 2001, 2004, 2006, 2008, 2010, 2012, 2014, 2016 as a constituent of IJCAR. The invited talks of Wolfgang Bibel and Reiner Hähnle

were part of a special session celebrating the achievements of TABLEAUX. Posters, proceedings, pictures, and memorabilia of past editions, together with testimonies of several of chairs of previous TABLEAUX conferences, were displayed in an exhibition held during TABLEAUX 2017.

This year's Best Paper Award was presented to Ori Lahav and Yoni Zohar for their paper Cut-Admissibility as a Corollary of the Subformula Property. All three reviews highlighted the novelty and fundamental importance of the results, and the Program Committee voted unanimously to give the award to this paper. The TABLEAUX Best Paper Award was established as a permanent initiative of TABLEAUX in 2015.

There are a lot of people we need to thank. We thank all authors who submitted papers and all participants of the conference for their contributions and presentations. We are grateful to the invited speakers for their participation and invited lectures as well as for contributing papers to the proceedings, and we thank the tutorial presenters and workshop organizers. We thank everyone who contributed to the celebration and exhibition commemorating 25 years of TABLEAUX. We are extremely grateful to the Program Committee and the additional reviewers for their assistance and hard work in ensuring a high-quality program. For advice and support, we thank the members of the TABLEAUX Steering Committee. Special thanks must go to the program chairs of FroCoS, Clare Dixon and Marcelo Finger, and the program chairs of ITP, César Muñoz and Mauricio Ayala-Rincón, for the friendly cooperation in coordinating the programs and joint sessions.

It is our pleasure to acknowledge and thank a number of organizations for supporting the conference. The Association for Automated Reasoning (AAR), the European Association for Computer Science Logic (EACSL), and the Association for Symbolic Logic (ASL) provided scientific support. We received financial support from CNPq (ARC 03/2016), CAPES (PAEP 03/2017), and FAP-DF (02/2017). We are also very grateful to the European Association for Artificial Intelligence (EurAI) for sponsoring the talks of Wolfgang Bibel and Reiner Hähnle. Special thanks go to everyone in the Departments of Computer Science (CIC) and Mathematics (MAT) at the Universidade de Brasília (UnB) and the Departments of Informatics and Applied Mathematics (DIMap) and Mathematics (DMAT) at the Universidade Federal do Rio Grande do Norte (UFRN), who contributed to the organization of the conference. Also, we greatly appreciate Springer's continuing support in publishing the proceedings.

Last but not least, we are indebted to Daniele Nantes, Elaine Pimentel, and João Marcos for their tremendous effort in organizing TABLEAUX, FroCoS, ITP, and all co-located events. Their support was essential for the success of the conferences, and making our lives as chairs much easier.

July 2017

Cláudia Nalon  
Renate A. Schmidt

# Organization

TABLEAUX 2017 was organized by the Departments of Computer Science (CIC) and Mathematics (MAT) at the Universidade de Brasília (UnB) and by the Departments of Informatics and Applied Mathematics (DIMAp) and Mathematics (DMAT) at the Universidade Federal do Rio Grande do Norte (UFRN).

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