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# Developments in Language Theory

11th International Conference, DLT 2007  
Turku, Finland, July 3-6, 2007  
Proceedings

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# Preface

The 11th International Conference on Developments in Language Theory (DLT 2007) was held at the University of Turku, Finland, July 3–6, 2007. This was the second time DLT took place in Turku. Indeed, the very first meeting was organized in Turku in 1993. Consequent meetings were held in Magdeburg (1995), Thessaloniki (1997), Aachen (1999), Vienna (2001), Kyoto (2002), Szeged (2003), Auckland (2004), Palermo (2005), and Santa Barbara (2006). The conference series is held under the auspices of the European Association for Theoretical Computer Science.

The DLT meeting can be viewed as the main conference on automata and formal language theory. The current topics of the conference include the following: grammars, acceptors and transducers for strings, trees, graphs and arrays, efficient text algorithms, algebraic theories for automata and languages, combinatorial and algebraic properties of words and languages, variable-length codes, symbolic dynamics, decision problems, relations to complexity theory and logic, picture description and analysis, polyominoes and bidimensional patterns, cryptography, concurrency, bio-inspired computing, quantum computing. This volume of *Lecture Notes in Computer Science* contains the papers that were presented at DLT 2007, including the abstracts or full papers of the six invited speakers Volker Diekert (Stuttgart), Thomas Henzinger (Lausanne), Michal Kunc (Brno), Ming Li (Waterloo), Jacques Sakarovitch (Paris), and Kai Salomaa (Kingston).

For the conference, 32 contributed papers were selected from a record-breaking 74 submissions. We warmly thank the authors of the papers, the members of the Program Committee, who faced many hard decisions, and the reviewers of the submitted papers for their valuable work. All these efforts were the basis of the success of the conference. In particular, we are very thankful to the invited speakers of the conference. Finally, we thank the Organizing Committee for its splendid work and also the members of the Steering Committee.

Finally, we wish to thank the support of the conference sponsors: The Academy of Finland, The Finnish Cultural Foundation, the Finnish Academy of Science and Letters / Vilho, Yrjö and Kalle Väisälä Foundation, the City of Turku, the University of Turku, the Turku Centre for Computer Science, and Centro Hotel.

April 2007

Tero Harju  
Juhani Karhumäki  
Arto Lepistö

# **Organization**

DLT 2007 was organized by the Department of Mathematics and Centre for Fundamentals of Computing and Discrete Mathematics (FUNDIM), University of Turku.

## **Invited Speakers**

Volker Diekert (Stuttgart, Germany)  
Thomas Henzinger (Lausanne, Switzerland)  
Michal Kunc (Brno, Czech Republic)  
Ming Li (Waterloo, Canada)  
Jacques Sakarovitch (Paris, France)  
Kai Salomaa (Kingston, Canada)

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