

Descriptive Complexity of Formal Systems

Michal Hospodár, Galina Jirásková, Stavros Konstantinidis

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Descriptive Complexity of Formal Systems

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Preface

This volume contains the papers presented at the 21st International Conference on Descriptive Complexity of Formal Systems (DCFS 2019) held in Košice, Slovakia, during July 17–19, 2019. It was jointly organized by the Working Group 1.02 on Descriptive Complexity of the International Federation for Information Processing (IFIP), by the Košice branch of the Mathematical Institute of the Slovak Academy of Sciences, and by the Slovak Artificial Intelligence Society.

The DCFS conference series is an international venue for the dissemination of new results related to all aspects of descriptive complexity, which is a field in computer science that deals with the costs of description of objects in various computational models, such as Turing machines, pushdown automata, finite automata, grammars, and others.

DCFS became an IFIP working conference in 2016, continuing the former Workshop on Descriptive Complexity of Formal Systems, which was a result of merging together two workshop series: Descriptive Complexity of Automata, Grammars and Related Structures (DCAGRS) and Formal Descriptions and Software Reliability (FDSR). DCAGRS was previously held in Magdeburg, Germany (1999), London, Ontario, Canada (2000), and Vienna, Austria (2001). FDSR was previously held in Paderborn, Germany (1998), Boca Raton, Florida, USA (1999), and San Jose, California, USA (2000). These workshops were merged in DCFS 2002 in London, Ontario, Canada, which is regarded as the 4th DCFS. Since 2003, DCFS has been successively held in Budapest, Hungary (2003), London, Ontario, Canada (2004), Como, Italy (2005), Las Cruces, New Mexico, USA (2006), Nový Smokovec, High Tatras, Slovakia (2007), Charlottetown, Prince Edward Island, Canada (2008), Magdeburg, Germany (2009), Saskatoon, Canada (2010), Giessen, Germany (2011), Braga, Portugal (2012), London, Ontario, Canada (2013), Turku, Finland (2014), Waterloo, Ontario, Canada (2015), Bucharest, Romania (2016), Milan, Italy (2017), and Halifax, Nova Scotia, Canada (2018).

The topics of this volume include: finite state transducers, quantum automata theory, state complexity, syntactic complexity, subword complexity, quasi-Polish spaces, tree automata, jumping automata, pushdown automata with constant height, input-driven pushdown automata, simple semi-conditional grammars, and monotone WQOs.

There were 25 submissions from 15 different countries: Algeria, Canada, Chile, Czech Republic, France, Germany, Hungary, India, Italy, Japan, Latvia, Russia, Slovakia, South Korea, and the USA. The submission, single-blind refereeing process, and the collating of the proceedings were supported by the EasyChair conference system. Each submission was reviewed by at least three, and on average 3.1, Program Committee members.

The committee selected 18 papers for presentation at the conference, and publication in this volume. The program also included four invited talks by Rudolf Freund, Jarkko Kari, Benedek Nagy, and Giovanni Pighizzini.

We would like to thank the Program Committee members and the external reviewers for their help in selecting the papers. We are also very grateful to all invited speakers, contributing authors, session chairs, and all the participants for their valuable contributions that helped DCFS 2019 to be a scientifically successful event in a collaborative and friendly atmosphere.

We are also grateful to the editorial staff at Springer, in particular Alfred Hofmann and Anna Kramer, for their guidance and help during the process of publishing this volume, and for supporting the event through publication in the LNCS series.

Last but not least, we would like to thank the conference sponsors for their financial support, and the local Organizing Committee: Peter Mlynářčík and Matúš Palmovský (social program), Ivana Krajňáková and Peter Gurský (financial issues), Viktor Olejár (IT support), Juraj Šebej (conference materials). Everything was always carefully checked and slightly criticized by Jozef Jirásek to whom our sincere gratitude goes as well.

We all are looking forward to the next DCFS in Vienna, Austria.

July 2019

Michal Hospodár
Galina Jirásková
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Contents

A General Framework for Sequential Grammars with Control Mechanisms.	1
<i>Rudolf Freund</i>	
Low-Complexity Tilings of the Plane	35
<i>Jarkko Kari</i>	
Union-Freeness, Deterministic Union-Freeness and Union-Complexity.	46
<i>Benedek Nagy</i>	
Limited Automata: Properties, Complexity and Variants.	57
<i>Giovanni Pighizzini</i>	
Nondeterministic Right One-Way Jumping Finite Automata (Extended Abstract)	74
<i>Simon Beier and Markus Holzer</i>	
State Complexity of Single-Word Pattern Matching in Regular Languages . . .	86
<i>Janusz A. Brzozowski, Sylvie Davies, and Abhishek Madan</i>	
Square, Power, Positive Closure, and Complementation on Star-Free Languages	98
<i>Sylvie Davies and Michal Hospodár</i>	
Descriptive Complexity of Matrix Simple Semi-conditional Grammars	111
<i>Henning Fernau, Lakshmanan Kuppusamy, and Indhumathi Raman</i>	
Regulated Tree Automata.	124
<i>Henning Fernau and Martin Vu</i>	
Generalized de Bruijn Words and the State Complexity of Conjugate Sets . . .	137
<i>Daniel Gabric, Štěpán Holub, and Jeffrey Shallit</i>	
The Syntactic Complexity of Semi-flower Languages	147
<i>Kitti Gelle and Szabolcs Iván</i>	
Limited Nondeterminism of Input-Driven Pushdown Automata: Decidability and Complexity	158
<i>Yo-Sub Han, Sang-Ki Ko, and Kai Salomaa</i>	
Computability on Quasi-Polish Spaces.	171
<i>Mathieu Hoyrup, Cristóbal Rojas, Victor Selivanov, and Donald M. Stull</i>	

NFA-to-DFA Trade-Off for Regular Operations 184
Galina Jirásková and Ivana Krajňáková

State Complexity of Simple Splicing 197
Lila Kari and Timothy Ng

Nondeterminism Growth and State Complexity. 210
Chris Keeler and Kai Salomaa

Descriptive Complexity of Iterated Uniform Finite-State Transducers 223
*Martin Kutrib, Andreas Malcher, Carlo Mereghetti,
and Beatrice Palano*

On Classes of Regular Languages Related to Monotone WQOs 235
Mizuhito Ogawa and Victor Selivanov

State Complexity of GF(2)-Concatenation and GF(2)-Inverse
on Unary Languages 248
Alexander Okhotin and Elizaveta Sazhneva

Pushdown Automata and Constant Height: Decidability and Bounds 260
Giovanni Pighizzini and Luca Prigioniero

On the Decidability of Finding a Positive ILP-Instance in a Regular Set
of ILP-Instances 272
Petra Wolf

How Does Adiabatic Quantum Computation Fit into Quantum
Automata Theory?. 285
Tomoyuki Yamakami

Author Index 299