

One-Sided Random Context Grammars

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Area

- Theoretical computer science, formal language theory

Gist

- a variant of random context grammars
- $(A \rightarrow x, R, F) \in P$

$$\overleftarrow{\dots} \boxed{A} \overrightarrow{\dots}$$



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Illustration

$(A \rightarrow x, \{B, C\}, \{D\}) \in P_L$

$bBcECbAcD$



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Illustration

$(A \rightarrow x, \{B, C\}, \{D\}) \in P_L$

$\overleftarrow{bBcECb} \boxed{A} cD \Rightarrow bBcECb x cD$



General Information

- submitted on 2014-03-04
- 127 pages
- 3 parts, 10 chapters



- Abstract, Keywords, Acknowledgements, Contents
- Part I: Introduction and Terminology
 - 1 Introduction
 - 2 Rudiments of Formal Language Theory
- Part II: One-Sided Random Context Grammars
 - 3 Definitions and Examples
 - 4 Generative Power
 - 5 Normal Forms
 - 6 Reduction
 - 7 Leftmost Derivations
 - 8 Generalized One-Sided Forbidding Grammars
 - 9 LL One-Sided Random Context Grammars
- Part III: Conclusion
 - 10 Concluding Remarks
- References, Language Family Index, Subject Index



A. Meduna and P. Zemek

One-Sided Random Context Grammars

In: *Acta Informatica*, 2011



A. Meduna and P. Zemek

Nonterminal Complexity of One-Sided Random Context Grammars

In: *Acta Informatica*, 2012



A. Meduna and P. Zemek

One-Sided Forbidding Grammars and Selective Substitution Grammars

In: *International Journal of Computer Mathematics*, 2012



A. Meduna and P. Zemek

One-Sided Random Context Grammars with Leftmost Derivations

In: *LNCS Festschrift Series: Languages Alive*, 2012



P. Zemek

Normal Forms of One-Sided Random Context Grammars

In: *EEICT*, 2012



A. Meduna and P. Zemek

Generalized One-Sided Forbidding Grammars

In: *International Journal of Computer Mathematics*, 2013



A. Meduna and and P. Zemek

One-Sided Random Context Grammars with a Limited Number of R.R.C. Rules

In: *Theoretical Computer Science*, 2014

+ 3 more

- 2 books



A. Meduna and P. Zemek

Regulated Grammars and Automata

Springer, New York, US, 694 pages, 2014



A. Meduna and P. Zemek

Regulated Grammars and Their Transformations

BUT FIT, Brno, CZ, 239 pages, 2010

- 1 book chapter

- 13 international journal papers (12 with IF)

- 10 international conference papers

- 3 international conference posters/presentations

- 3 student competition contributions

- 5 submitted manuscripts



Courses

- ✓ APD – Selected Topics on Language Parsing and Translation
- ✓ TID – Modern Theoretical Computer Science
- ✓ MID – Modern Mathematical Methods in Informatics
- ✓ LOG – Mathematical Logic

Exams

- ✓ Ph.D. Test of English
- ✓ State Doctoral Examination

Courses

- 2010/2011: IFJ, GAL, IPP, IZP
- 2011/2012: IFJ, GAL, IPP
- 2012/2013: IFJ, IFJe
- 2013/2014: IFJ, IFJe

Thesis Supervision

- Bachelor's Thesis: 7
- Master's Thesis: 1

ZH

- Overall: 1026

Activities (Bobří)

- Overall: 178

TAČR (2011–2013)

- System for Support of Platform Independent Malware Analysis in Executable Files
- with J. Křoustek, L. Ďurfina, D. Kolář, and others
- in cooperation with AVG and Lissom

FRVŠ (2012)

- Mathematical Foundations of Formal Language Theory
- with L. Vrábel and A. Meduna

IT4I (2012–*)

- The IT4Innovations Centre of Excellence

TAČR V3C (2012–*)

- Visual Computing Competence Center

Discussion



A. Meduna and P. Zemek
Regulated Grammars and Automata
Springer, New York, US, 690 pages, 2014



A. Meduna and P. Zemek
Controlled Finite Automata
In: *Acta Informatica* (in press)



A. Meduna, L. Vrábel, and P. Zemek
Solutions to Four Open Problems Concerning Controlled Pure Grammar Systems
In: *International Journal of Computer Mathematics* (in press)



A. Meduna and P. Zemek
One-Sided Random Context Grammars with a Limited Number of Right Random Context Rules
In: *Theoretical Computer Science*, 2014



L. Ďurфина, J. Křoustek, and P. Zemek
Psyb0t Malware: A Step-by-Step Decompilation Case Study
In: *WCRE'13*, IEEE, Koblenz, DE, 2013



L. Ďurфина, J. Křoustek, and P. Zemek
Retargetable Machine-Code Decompilation in Your Web Browser
In: *WICT'13*, IEEE, Hanoi, VN, 2013