

One-Sided Random Context Grammars

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Area

- Theoretical computer science, formal language theory

Gist

- Variant of a random context grammar
- $P = P_L \cup P_R$



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

$bBcECb \boxed{A} cD \Rightarrow bBcECbx cD$

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What to study?

- Theoretical properties
- Applications



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|----|-------------------------------------|-----|
| 1 | Introduction | 0% |
| 2 | Mathematical Background | 90% |
| 3 | Rudiments of Formal Language Theory | 90% |
| 4 | Definitions and Examples | 90% |
| 5 | Generative Power | 90% |
| 6 | Reduction | 90% |
| 7 | Normal Forms | 75% |
| 8 | Canonical Derivations | 90% |
| 9 | Generalized Versions | 75% |
| 10 | LL Versions | 75% |
| 11 | Applications | 75% |
| 12 | Conclusion | 0% |

Published



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

On 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 Festschrifts Series*, 2012 (to appear)

Submitted

- Normal Forms of One-Sided Random Context Grammars (IPL)
- Generalized One-Sided Forbidding Grammars (IJCM)
- LL One-Sided Random Context Grammars (DLT'12)



- 1 book
- 5 international journal papers
- 5 international conference papers
- 2 student competition contributions
- 11 submitted manuscripts
- 4 unsubmitted 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: IZP, IFJ, GAL, IPP
- 2011/2012: IFJ, GAL, IPP

ZH

- 2010/2011: 442
- 2011/2012: 280
- Overall: 722

Activities (Bobří)

- 2010/2011: 55
- 2011/2012: 20
- Overall: 75

TAČR (2011–2013)

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

FRVŠ (2012)

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

IT4I (2011–2015)

- The IT4Innovations Centre of Excellence

Discussion