

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

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What to study?

- Theoretical properties
- Applications



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	90%
8	Canonical Derivations	90%
9	Generalized Versions	90%
10	LL Versions	90%
11	Applications	75%
12	Conclusion	0%



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



A. Meduna and P. Zemek

Generalized One-Sided Forbidding Grammars

In: *International Journal of Computer Mathematics*, 2013



P. Zemek

Normal Forms of One-Sided Random Context Grammars

In: *EEICT*, 2012



A. Meduna and P. Zemek

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

In: *Theoretical Computer Science* (submitted)



A. Meduna and L. Vrábel and P. Zemek

LL One-Sided Random Context Grammars

In: *Schedae Informaticae* (submitted)



- 1 book
- 1 book chapter
- 10 international journal papers (9 with IF)
- 8 international conference papers
- 3 international conference posters/presentations
- 3 student competition contributions
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In Preparation



A. Meduna and P. Zemek

Regulated Grammars and Automata

Springer, pp. 680, 2014 (expected)



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

ZH

- 2010/2011: 442
- 2011/2012: 280
- 2012/2013: 184
- Overall: 906

Activities (Bobří)

- Overall: 125

TAČR (2011–*)

- System for Support of Platform Independent Malware Analysis in Executable Files
- with J. Křoustek, L. Ďurčina, 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

Discussion



A. Meduna and P. Zemek

Generalized One-Sided Forbidding Grammars

In: *International Journal of Computer Mathematics*, 2013



A. Meduna and P. Zemek

On the Generation of Sentences with Their Parses by Propagating RCGs

In: *Theoretical Computer Science*, 2013



A. Meduna and P. Zemek

Left Random Context ETOL Grammars

In: *Fundamenta Informaticae*, 2013



A. Meduna and P. Zemek

Jumping Finite Automata

In: *International Journal of Foundations of Computer Science*, 2012



A. Meduna and P. Zemek

Controlled Pure Grammar Systems

In: *Journal of Universal Computer Science*, 2012



A. Meduna and L. Vrabel and P. Zemek

An Infinite Hierarchy of Language Families Resulting from Stateless PDAs

In: *DCFS'12*, 2012



L. Āurfina and J. Křoustek and P. Zemek and B. Kabele

Accurate Recovery of Functions in a Retargetable Decompiler

In: *RAID'12*, 2012



L. Āurfina and J. Křoustek and P. Zemek and B. Kabele

Detection and Recovery of Functions and Their Arguments in a Retargetable
Decompiler

In: *WCRE'12*, 2012