Foundations of Informatics: a Bridging Course

Week 3: Formal Languages and Processes
Part : Kick-Off Meeting
March 31 – April 4, 2025

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https://moves.rwth-aachen.de/teaching/ws-2024-25/foi/

Chair of Software Modeling and Verification (Computer Science 2)
RWTH AACHEN UNIVERSITY

Overview

- Part A: Regular Languages
  - Introduction to Formal Languages
  - Deterministic and Nondeterministic Finite Automata
  - Regular Expressions and Languages
  - Closure and Decidability Properties
- Part C: Context-Free Languages
  - Context-Free Grammars and Languages
  - Relation to Regular Languages
  - Pushdown Automata
  - Closure and Decidability Properties

Schedule

Monday, March 31:

- 09:00–09:30 Kick-off meeting
- Rest of day: Self-paced learning (Regular Languages)

Tuesday, April 1:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Regular Languages)

Wednesday, April 2:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Thursday, April 3:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Friday, April 4:

- 09:00–11:00 Questions, exercises & closing

Exams

- Face-to-face in oral form
- In week 17/18 (April 22–30), Tue/Wed
- Either at Aachen (CS Department) or Bonn (b-it)
- Respectively register via RWTHonline!
- Selection of slots via poll (coming soon)
- Second attempt: week 25 (June 16–20)

Resources

- Videos and slides on https://moves.rwth-aachen.de/teaching/ws-2024-25/foi/
- Textbooks:
  - J.E. Hopcroft, R. Motwani, J.D. Ullmann: *Introduction to Automata Theory, Languages, and Computation*, 2nd ed., Addison-Wesley, 2001
  - A. Asteroth, C. Baier: *Theoretische Informatik*, Pearson Studium, 2002 [in German]
- JFLAP (software for experimenting with formal languages and automata)
- Theory of Computation online course