Foundations of Informatics: a Bridging Course

Week 3: Formal Languages and Processes

Part : Kick-Off Meeting

March 23–27, 2026

Thomas Noll

Software Modeling and Verification Group

RWTH Aachen University

`https://moves.rwth-aachen.de/teaching/ws-2`

Chair of
Software Modeling
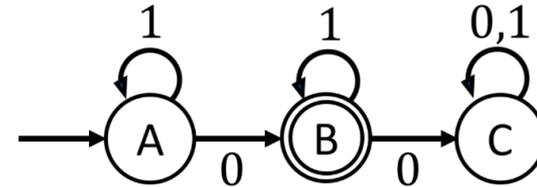and Verification
(Computer Science 2)

Overview

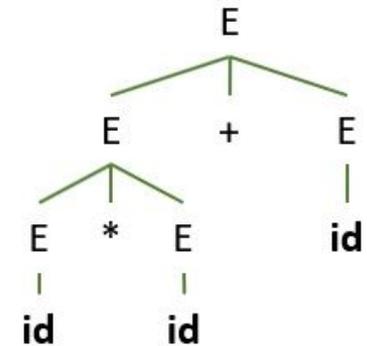- Part A: Regular Languages
  - Introduction to Formal Languages
  - Deterministic and Nondeterministic Finite Automata
  - Regular Expressions and Languages
  - Closure and Decidability Properties

- Part C: Context-Free Languages
  - Context-Free Grammars and Languages
  - Relation to Regular Languages
  - Pushdown Automata
  - Closure and Decidability Properties

```
E -> E * E
  -> E + E * E
  -> id + E * E
  -> id + id * E
  -> id + id * id
```

Schedule

Monday, March 23:
- 09:00–09:30 Kick-off meeting
- Rest of day: Self-paced learning (Regular Languages)

Tuesday, March 24:
- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Regular Languages)

Wednesday, March 25:
- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Thursday, March 26:
- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Friday, March 27:
- 09:00–11:00 Questions, exercises & closing

Exams

- First:
  - Wed, April 8, 2026, 10:00–12:00
  - b-it Bonn, room 0.109
- Second:
  - Thu, June 11, 2026, 14:00–16:00
  - RWTH Aachen University, room 9U10 in CS building E3
- Registration via RWTHonline
- Sample questions for week 3 available on

  `https://moves.rwth-aachen.de/teaching/ws-2025-26/foi/`

Resources

- Videos and slides on `https://moves.rwth-aachen.de/teaching/ws-2025-26/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 (also linked from web page)

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