


# Chapter 1

## Exercises

Course “Compiler Construction”

Martin Steffen

Spring 2022



# Section

## Exercises 01

1.1: Reg. expressions
1.2: Reg. Expr $\rightarrow$ automaton
1.3: Tools
1.4: Reflection
1.5: Determinization
1.6 Minimization

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1.2: Reg. Expr $\rightarrow$ automaton
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# 1.1: Reg. Expressions

1. begin and end with $a$
2. begin or end with $a$
3. digits without leading $0$
4. even numbers
5. all $2$s precede all $9$s
6. no 3 consecutive $b$'s
7. odd $a$'s or odd $b$'s
8. even $a$'s and even $b$'s
9. equal number of $a$'s and $b$'s



# 1.2: Reg. Expr $\rightarrow$ automaton






$$(a \mid b)^* a (a \mid b \mid \epsilon)$$

1. in prosa
2. Thompson
3. subset construction
4. minimization

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# 1.3: Tools






**Exercises 01**

1.1: Reg. expressions

1.2: Reg. Expr → automaton

1.3: Tools

1.4: Reflection

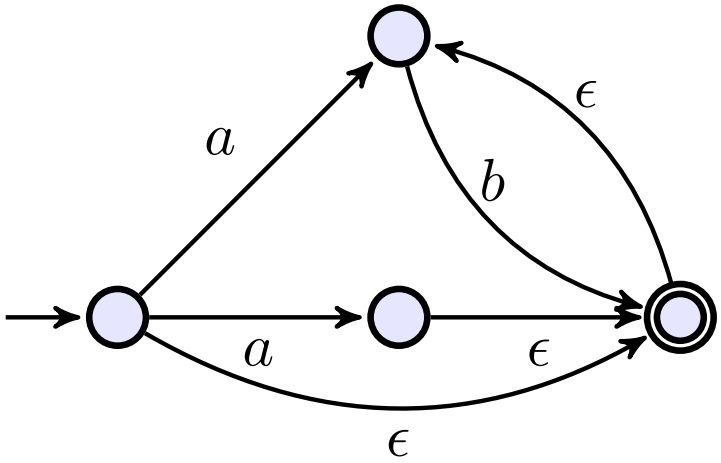
1.5: Determinization

1.6 Minimization

# 1.4: Reflection: why multi-stage



# 1.5: Determinization






# 1.6: Minimize the following ("$ac$ or $ab$")

