

# Automata & languages

A primer on the Theory of Computation



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Part 3 out of 4

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**closure and equivalence of regular languages**

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- concatenation
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if  $L_1$  and  $L_2$  are regular,  
then so are

$$L_1 \cup L_2$$

$$L_1 \cdot L_2$$

$$L_1^*$$

Last week, we started to learn about closure and **equivalence** of regular languages

is equivalent to

DFA  $\approx$  NFA

$\approx$

REG

We'll finish that today then start asking ourselves whether all languages are regular

$L_1 \quad \{0^n 1^n \mid n \geq 0\}$

$L_2 \quad \{w \mid w \text{ has an equal number of 0s and 1s}\}$

$L_3 \quad \{w \mid w \text{ has an equal number of occurrences of 01 and 10}\}$

(only one of them actually is)

# Advanced Automata

Thu Oct 7

- 1 Equivalence (the end)
  - DFA
  - NFA
  - Regular Expression
- 2 Non-regular languages
- 3 Context-free languages