Sept 27

COMPSCI 3331

Fall 2022

What's next?

- Assignment 1: out now, due Oct 11.
- Quiz 1 tomorrow **IN CLASS**.
- Remaining material tomorrow - asynchronous.

Some questions ..

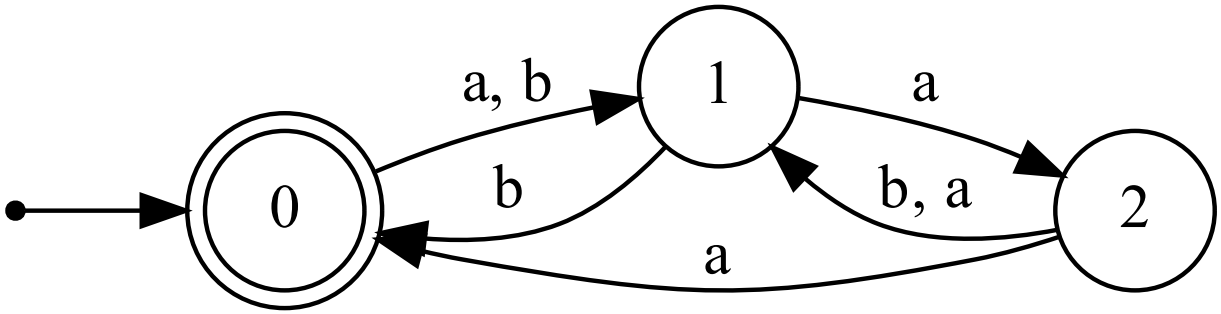
- Can a DFA match a prefix or suffix (ie: str*, obj*, db*, etc) or does each line have to match a single character to for each state
- How do we start A1 Question 1? (Two proofs - Sept 21)

DFAs

Build DFAs for the following languages.

- $L_2 = \{(aabc^*)^*\}$
- $L_3 = \{(abbd^*)^*\}$
- $L_4 = L_2 \cup L_3$

NFAs



NFAs

Which statements about NFAs are true?

- **A** In an NFA, there can be multiple transitions with the same label leaving one state.
- **B** In an NFA, there must be more than one path through the NFA for **some** word.
- **C** To accept a word, every path from the initial state must end in a final state.
- **D** To accept a word, one path from the initial state must end in a final state.
- **E** To **reject** a word, no paths from the initial state can end in a final state.

NFAs

- $L_5 = \{x \in \{a, b\}^* \ : \ |x|_a \text{ is odd or } |x| \geq 3\}$

Subset Construction

- $M = (Q, \Sigma, \delta, q_0, F)$ be an NFA. $\delta : Q \times \Sigma \to 2^Q$.
- Define a DFA $M_D = (2^Q, \Sigma, \delta_D, q_D, F_D)$.
- $\delta_D(P, a) =$
- $q_D =$
- $F_D =$

Subset Construction Example