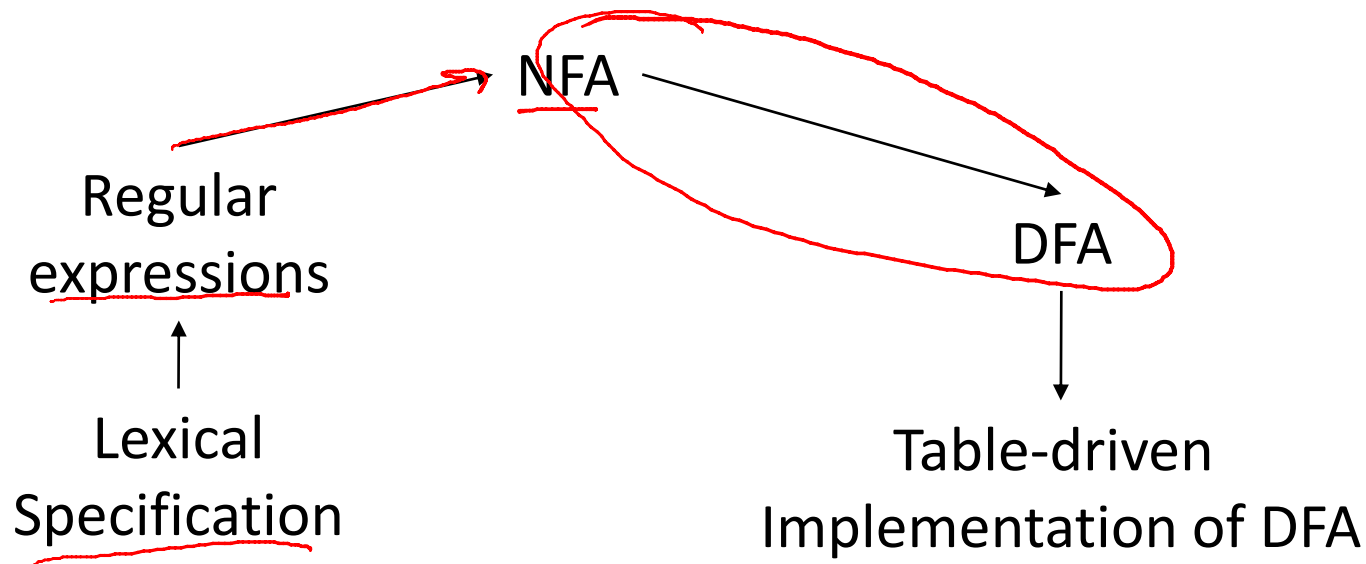




Compilers

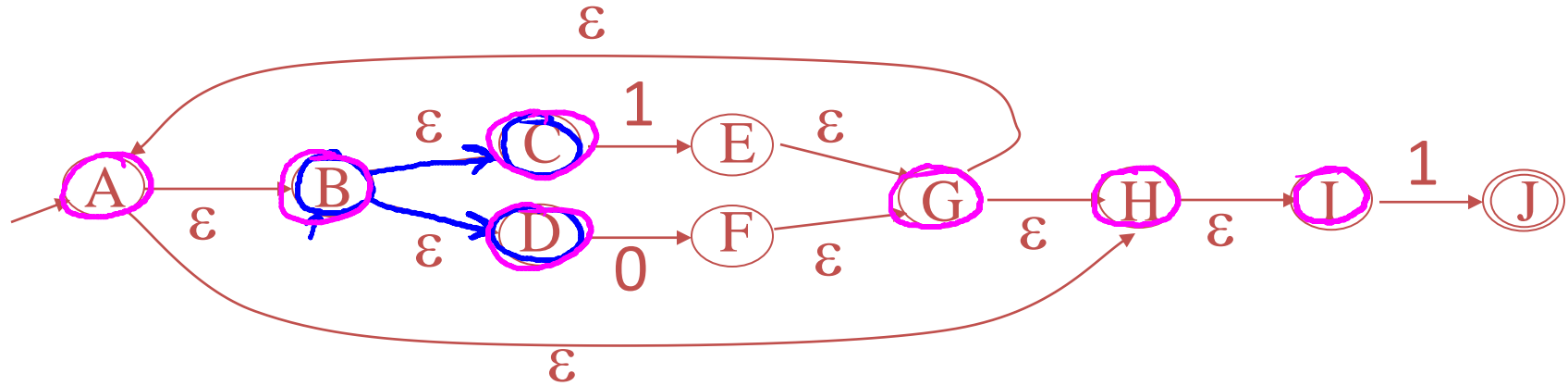
NFA to DFA



$$\epsilon\text{-closure}(B) = \{B, C, D\}$$

$$\epsilon\text{-closure}(G) = \{A, B, C, D, G, H, I\}$$

NFA to DFA



- An NFA may be in many states at any time
- How many different states?

N states

$$|S| \leq N$$

$$\boxed{2^N - 1}$$

→ finite set
of possible
configurations

NFA to DFA

NFA

states S

start $s \in S$

final $F \subseteq S$

$$\underline{a(X)} = \{y \mid x \in X \wedge x \xrightarrow{a} y\}$$

$\epsilon\text{-clos}$

DFA

states subsets of S

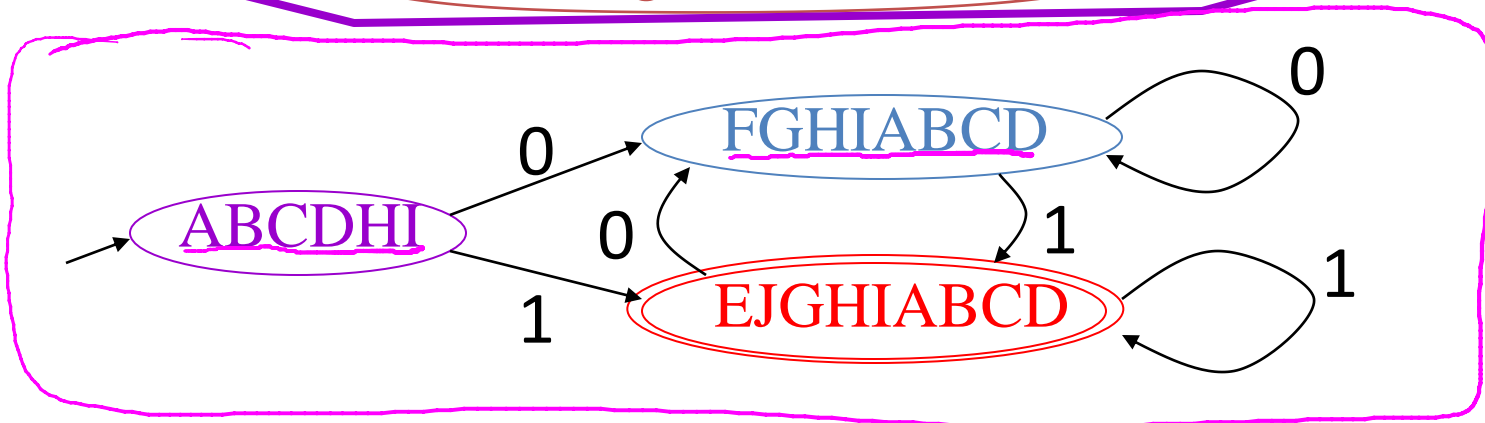
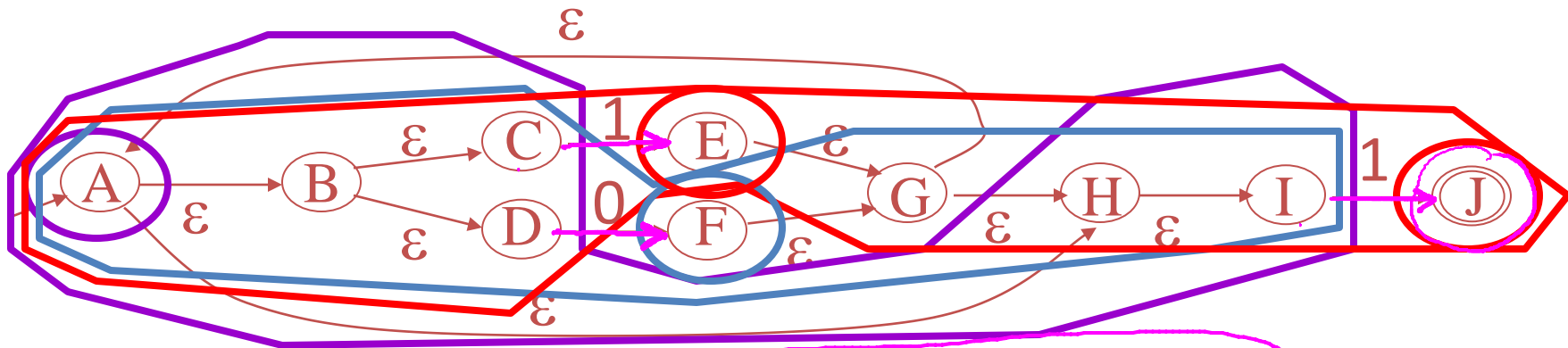
start $\epsilon\text{-clos}(s)$

final $\{X \mid X \cap F \neq \emptyset\}$

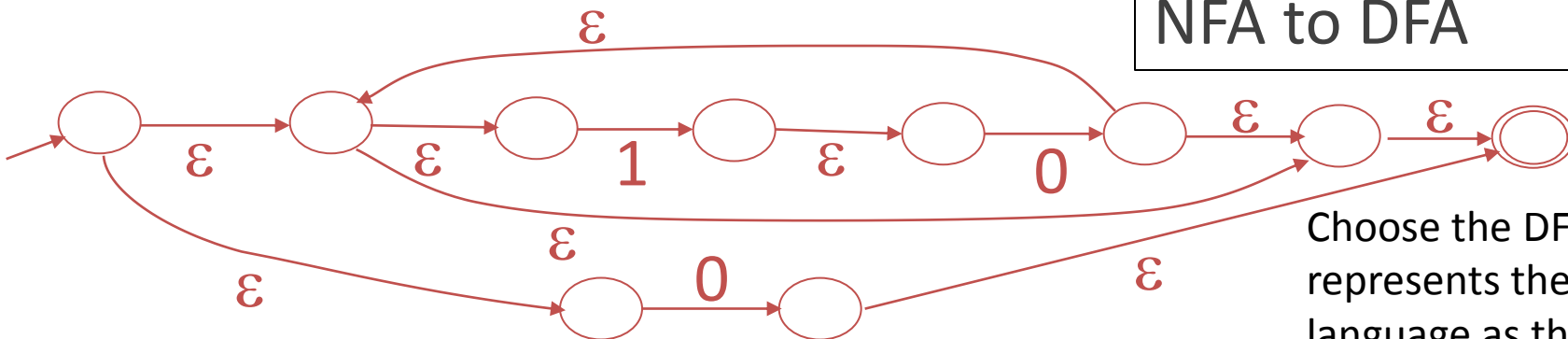
$X \xrightarrow{a} Y$ if

$$Y = \underline{\epsilon\text{-clos}(a(X))}$$

NFA to DFA



NFA to DFA



Choose the DFA that represents the same language as the given NFA

