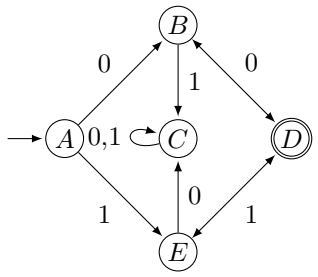
Regular grammars, context-free grammars

1. Consider the grammar $S \longrightarrow \mathtt{a}S|\mathtt{b}S|\mathtt{c}S|\mathtt{c}A \quad A \longrightarrow \mathtt{c}B|\mathtt{c} \quad B \longrightarrow \mathtt{a}B|\mathtt{b}B|\mathtt{c}B|\mathtt{a}|\mathtt{b}|\mathtt{c}$
   (a) Construct a finite automaton from this grammar.
   (b) What is the generated language?

2. Construct the regular grammar based on the following FA.



3. Construct equivalent grammars without ε-rules and chain rules
   (a) $S \longrightarrow S\mathtt{a}S\mathtt{b}|\varepsilon$
   (b) $S \longrightarrow ABC$, $A \longrightarrow BB|\varepsilon$, $B \longrightarrow CC|\mathtt{a}$, $C \longrightarrow AA|\mathtt{b}$