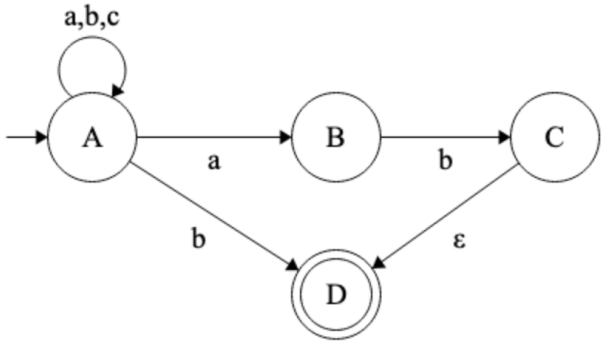
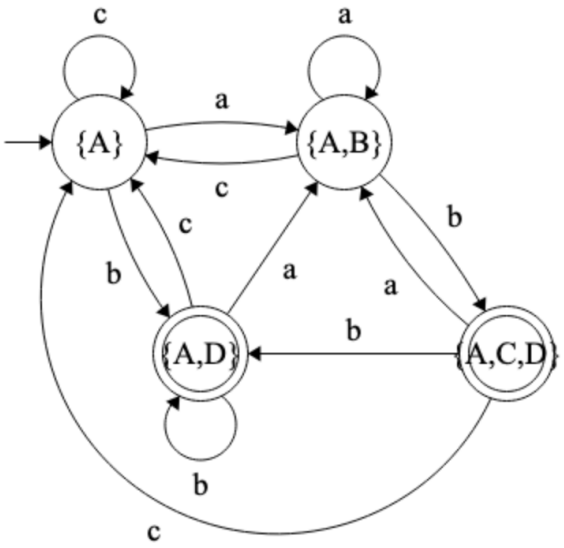
Section Questions

CS301, Week 04

1 NFA to DFA

Convert the following NFA to a DFA. Let $\Sigma = \{a, b, c\}$





2 Regular Expressions

Give the regular expression for the following languages. *Remember, regular expressions allow only union, concatenation and the kleene star.*

a) $L_a = \{x : \text{x is a binary string where two zeroes never appear consecutively}\} \Sigma = \{0, 1\}$

$$1^*(011^*)^*(0 \cup \epsilon)$$

b) $L_b = \{x : \text{x is a string where every 'a' is immediately followed by a 'b' }\} \Sigma = \{a, b, c\}$

$$((b \cup c)^*(ab)(b \cup c)^*)^* \cup (b \cup c)^*$$