

Daily Questions

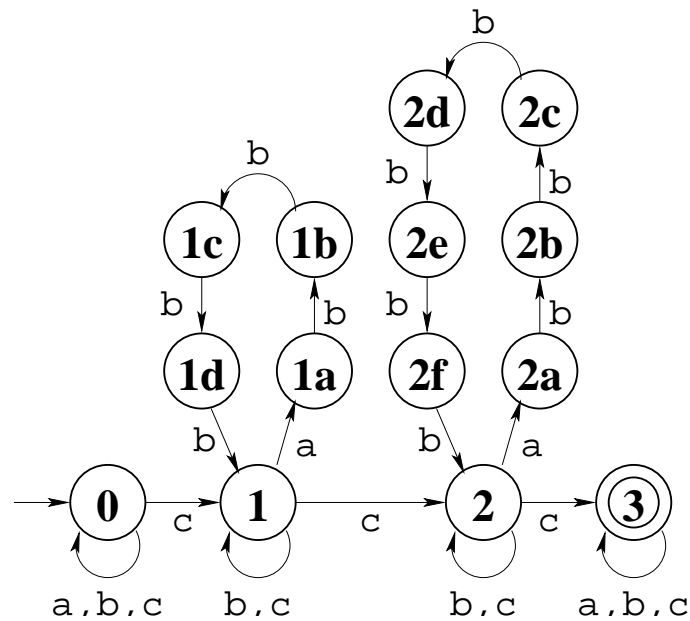


Figure 1: A Non-Deterministic Finite Automaton

(due September 14, 2005) Figure 1 shows the state transition diagram for a non-deterministic finite automaton. For each string below, state whether or not the string is accepted by the automaton. If it is accepted, give the sequence of states that the machine goes through to accept the string. For example, the string “abccba” is accepted, and the sequence of states is given by:

$$0 \xrightarrow{a} 0 \xrightarrow{b} 0 \xrightarrow{c} 1 \xrightarrow{c} 2 \xrightarrow{c} 3 \xrightarrow{b} 3 \xrightarrow{a} 3$$

If the string is not accepted, give a short explanation (at most three sentences) explaining why.

1. abcbabbbbbbbbcbbbcabbc
2. abccba
3. abccabbbbcba
4. abccabbbbcabbbbcabbbbcabbbbcabbbbc
5. abccabbbbbbcabcbabbbbcabcbabbbbbbc