

Philosophy of Cognitive Science

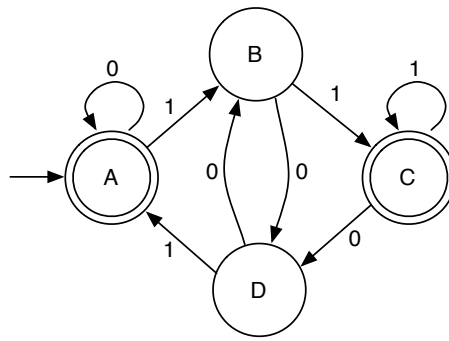
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Problem Set 1

DUE: 14:15 APRIL 29, 2014

1. Answer the following questions about this DFM:



- What is the start state?
 - What is the set of end states?
 - What sequence of states does the machines go through on input 001001?
 - Does the machine accept the string 110110?
 - Does the machine accept the string 0101?
 - Does the machine accept the string 1010?
 - Does the machine accept the empty string?
2. Give state diagrams of Deterministic Finite State Machines (DFMs) that recognize each of the following languages.
- All strings which contain at least three 1s.
 - All strings which do not contain the substring 01.
 - Every string that contains the substring 01 or the substring 10.
3. (a) Give a state diagram of a DFM that recognizes strings that end in 010.
(b) Give a state diagram of a Non-deterministic Finite State Machine (NFM) that reverses the DFM you constructed for 3a.