Gradiance Online Accelerated Learning

Suraj

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Help

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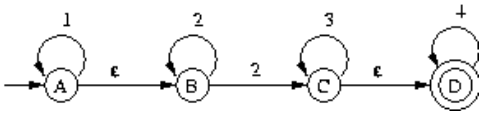
Number of questions:	4
Positive points per question:	3.0
Negative points per question:	1.0
Your score:	12

Deterministic and nondeterministic automata.

1. Here is a nondeterministic finite automaton with epsilon-transitions:



Suppose we use the subset construction of Algorithm 3.2 (p. 118) to convert this epsilon-NFA to a deterministic finite automaton with a dead state, with all transitions defined, and with no state that is inaccessible from the start state. Which of the following would be a transition of the DFA?

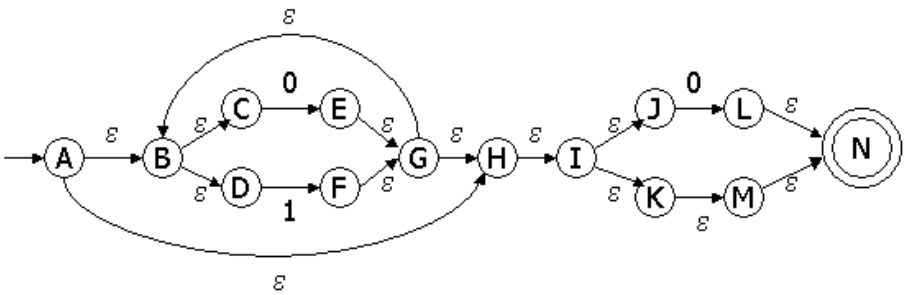
Note: we use S-x->T to say that the DFA has a transition on input x from state S to state T.

a) {B,C,D}-2->{B,C}
b) {A,B}-4->{D}
c) {A,B}-1->{A,B}
d) {A,B}-ε->{B}

Answer submitted: **c)**

You have answered the question correctly.

2. Here is an epsilon-NFA:



Suppose we construct an equivalent DFA by the construction of Algorithm 3.20 (p. 153). That is, start with the epsilon-closure of the start state A. For each set of states *S* we construct (which becomes one state of the DFA), look at the transitions from this set of states on input symbol 0. See where those transitions lead, and take the union of the epsilon-closures of all the states reached on 0. This set of states becomes a state of the DFA. Do the same for the

transitions out of *S* on input 1. When we have found all the sets of epsilon-NFA states that are constructed in this way, we have the DFA and its transitions.

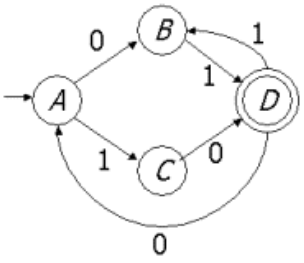
Carry out this construction of a DFA, and identify one of the states of this DFA (as a subset of the epsilon-NFA's states) from the list below.

a) ABCD
b) BCD
c) BCDGHIJKMN
d) BCDFGHIJKMN

Answer submitted: **d)**

You have answered the question correctly.

3. Examine the following DFA:



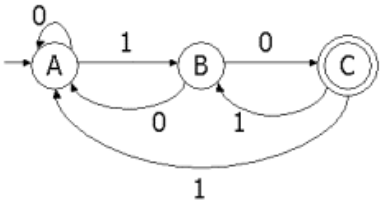
Identify in the list below the string that this automaton accepts.

a) 10000
b) 0110
c) 010011
d) 01010

Answer submitted: **d)**

You have answered the question correctly.

4. The following nondeterministic finite automaton:



accepts which of the following strings?

a) 1110100
b) 0010010
c) 01010011
d) 10011010

Answer submitted: **b)**

You have answered the question correctly.