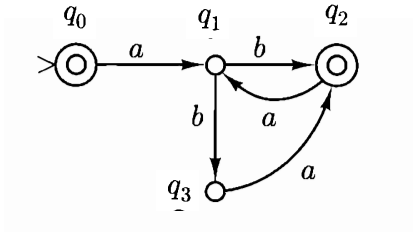


- (1) a) Apply (using pen and paper) the recognition algorithm on slide 16 for the nondeterministic automaton shown below to the input string "abaaba".
- b) Bonus: There is a problem with this algorithm. Which one? How can the algorithm be improved?



- (2) Construct a deterministic automaton for the nondeterministic automaton from (1), using the subset construction algorithm on slide 23.
- (3) Implement the recognition algorithm for NFA on slide 16. Your submission should use the automaton from (1) and the following inputs as test case:
- $ab \in L(M)$
 - $aba \in L(M)$
 - $abaab \in L(M)$
 - $abba \notin L(M)$
 - $aabab \notin L(M)$
 - More test cases are welcome!
- (4) Implement the subset construction algorithm on slide 23. Your submission should use the automaton from (1) as a test case.