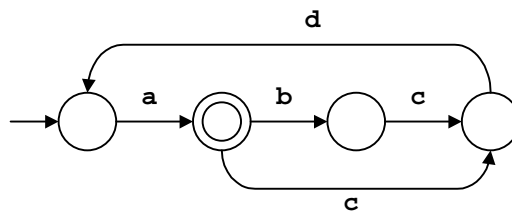
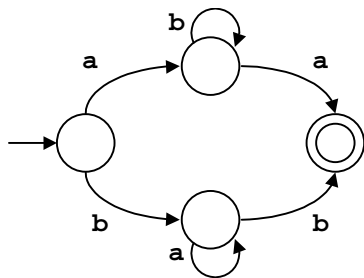


CSCI 447 – Spring 2003

Assignment 1: Scanning Theory

Professor: Muhammed F. Mudawwar
Due Date: Monday, February 17, 2003

- Write regular expressions for the following character sets
 - All strings of lowercase letters that begin and end in a .
 - All strings of one or more digits that contain no leading zeros.
 - All strings of one or more digits that represent even numbers.
 - All strings of a 's and b 's that contain no three consecutive b 's.
- Draw DFAs that accept the following:
 - Four reserved words **case**, **char**, **const**, and **continue**
 - All strings of a 's and b 's that contain an even number of a 's and an even number of b 's
 - $(a | (bc) *d) +$
- Write regular expressions that correspond to the following DFAs:



- Write a regular expression for a C comment surrounded by $/*$ and $*/$. Individual $/$ and $*$ may appear inside the comment, but not $*/$.
- Use the variation of Thompson's construction, described in the lecture notes, to convert the regular expression $(aa | b) * (a | bb) *$ into an NFA.
 - Convert the NFA of part (a) into a DFA using the subset construction method.
 - Minimize the DFA obtained in part (b).