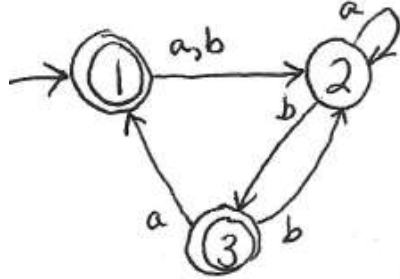
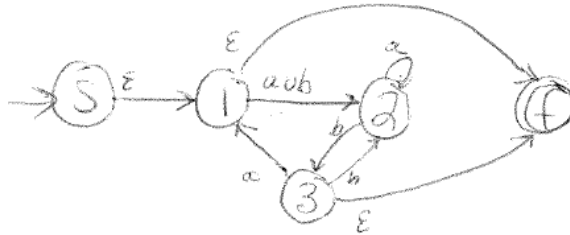


Theory of Computation, CSCI 438 spring 2022
Quiz 4, Feb. 4

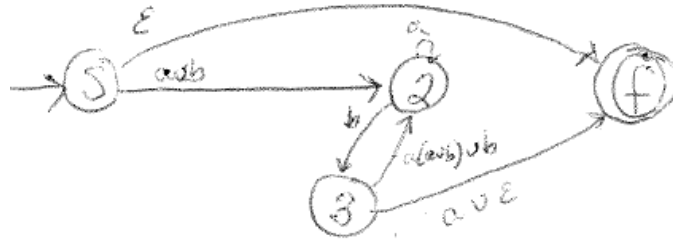
Using the mechanical method described in class, convert the following NFA to an equivalent regular expression.



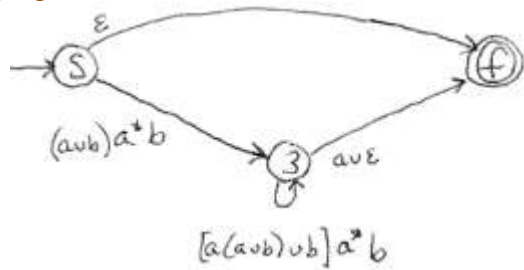
Generalized NFA:



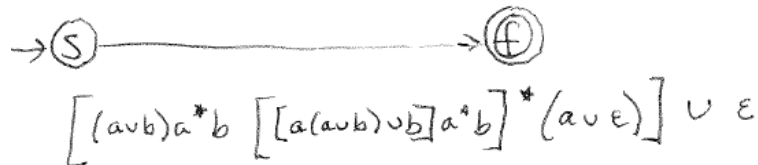
Ripping state 1:



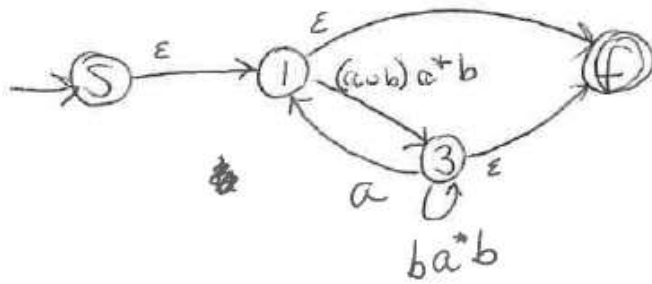
Ripping state 2:



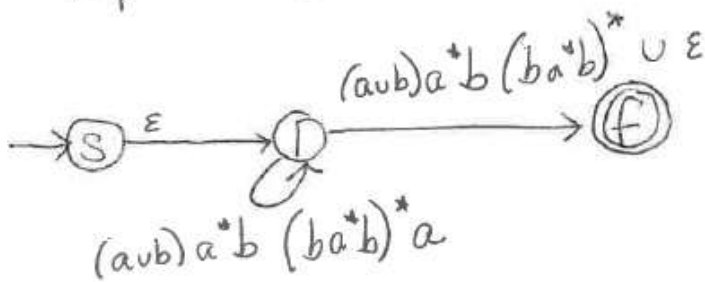
Ripping state 3 gives an answer. If internal states were ripped in another order, a different, but equivalent, answer would be gotten.



Rip state 2 first



Rip state 3



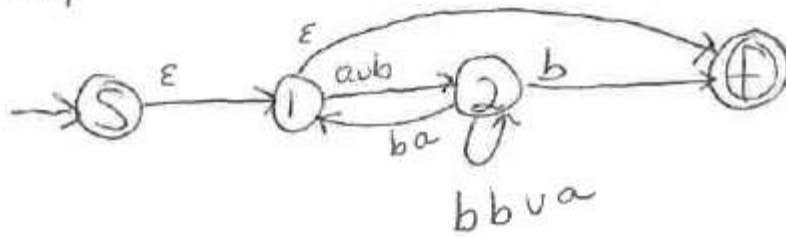
Rip state 1



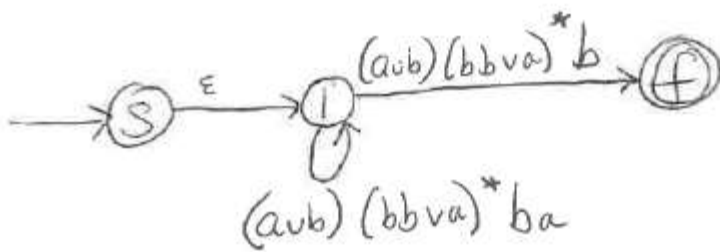
answer:

$$\left[(a^*b)^* a^* b (b a^* b)^* a \right]^* \left[(a^*b)^* a^* b (b a^* b)^* \cup \epsilon \right]$$

Rip state 3 first



Rip state 2



Rip state 1



answer

$$[(aub)(bbva)^*ba]^* (aub)(bbva)^* b$$