

CSC 320 - Tutorial 3

1. Regular expressions
2. NFA to regular expression conversion
3. Regular languages are closed under Kleene star proof

Questions

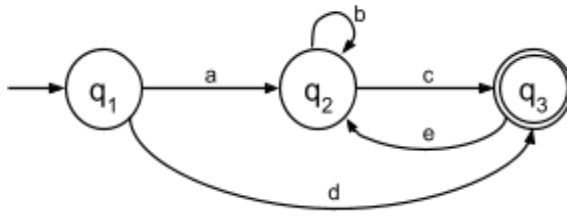
1. Design a regular expression for the following languages over $\Sigma = \{0, 1\}$
 - a. $L_1 = \{ w \mid \text{every odd position of } w \text{ is a } 1 \}$

- b. $L_2 = \{ w \mid w \text{ is string of length } \mathbf{at\ most\ } 5 \}$

- c. $L_3 = \{ w \mid w \text{ contains an even number of 0s } \mathbf{or\ exactly\ two\ } 1\text{s} \}$

2. Convert the following regular expression to an NFA: $R_1 = (a \cup b^*) a$

3. Write the regular expression that describes the language of the DFA below



4. Prove that regular languages are closed under Kleene star