

CS338 HW1

Brock Ellefson

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1.1 State Diagrams of DFA

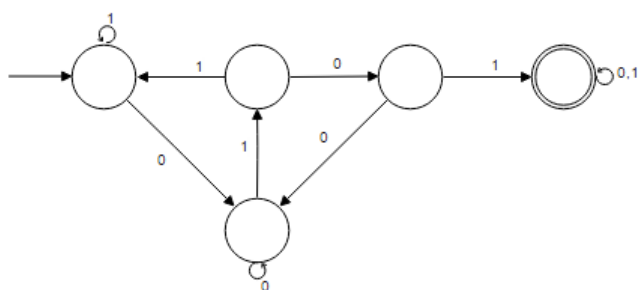


Figure 1: $\{w \mid w \text{ contains the substring } 0101 \text{ (i.e., } w = x0101y \text{ for some } x \text{ and } y)\}$

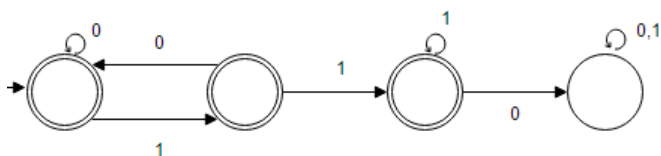


Figure 2: $\{w \mid w \text{ doesn't contain the substring } 110\}$

1.2 State Diagrams of NFA

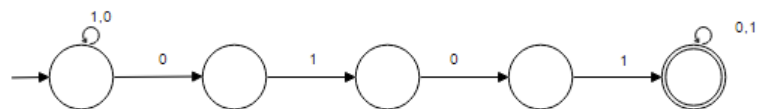


Figure 3: $\{w \mid w \text{ contains the substring } 0101 \text{ (i.e., } w = x0101y \text{ for some } x \text{ and } y)\}$

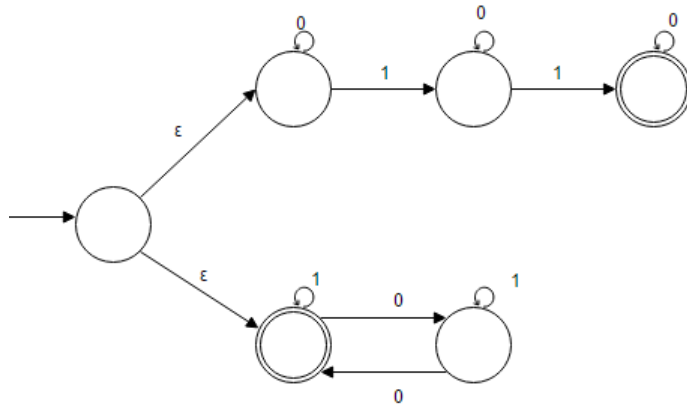


Figure 4: $\{w \mid w \text{ has either an even amount of 0's or exactly 2 1's}\}$

2 NFA to DFA

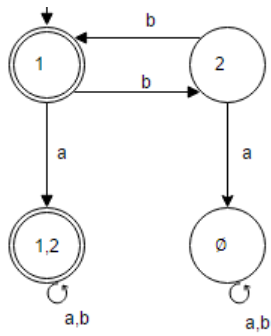


Figure 5: 1.16 part a

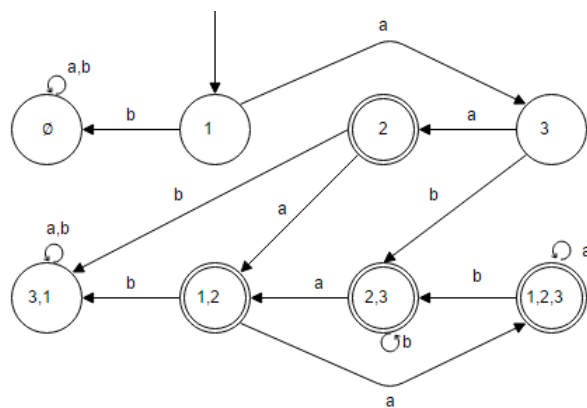


Figure 6: 1.16 part b

3 Regular Expression to NFA

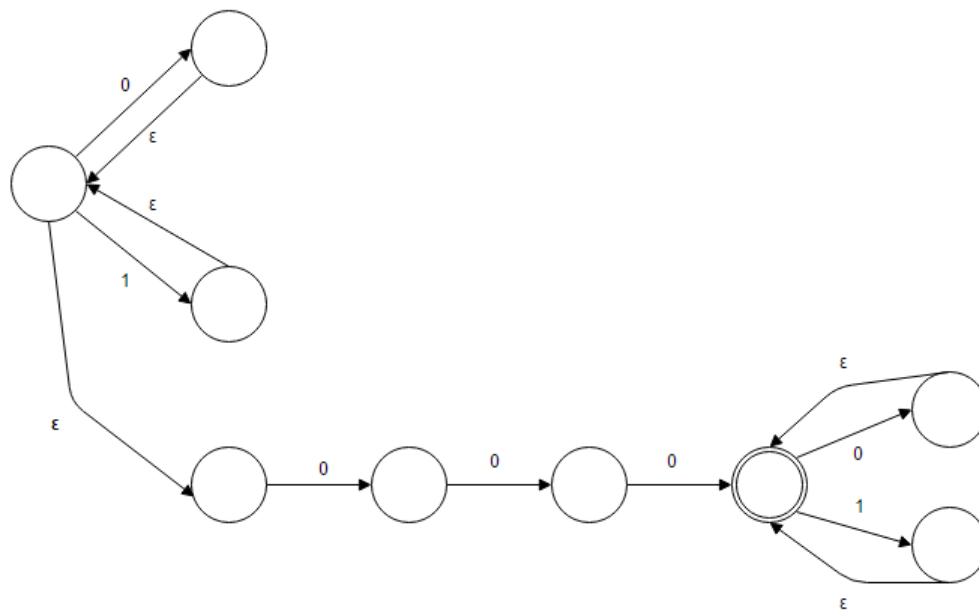


Figure 7: $(0 \cup 1)^* 000 (0 \cup 1)^*$