

Homework 1

Give DFAs for following languages (1- 4) over the alphabet $\{0, 1\}$.

(Notice : Diagram notation for DFA or NFA)

1. $L = \{w \in \{0, 1\}^* \mid w \text{ does not end with } 10\}$
2. $L = \{w \in \{0, 1\}^* \mid w \text{ contains both } 01 \text{ and } 10 \text{ as substrings}\}$.
3. The set of all strings such that each block of three consecutive symbols contains at least two 0's.
4. The set of strings such that the number of 0's is divisible by 3, and the number of 1's is divisible by 2.
5. Design an NFA within four states for the language $\{0\}^* \cup \{01\}^*$.
6. Design an NFA for the following language over $\Sigma = \{0, 1\}$, $L = \{w \mid w \text{ contains at least two } 0\text{'s or exactly two } 1\text{'s}\}$.