Homework 3

Sep 24, 2025

1 (30'). Define a *backward-read DFA* as a deterministic finite automaton that processes its input string from right to left. Prove that a language is regular if and only if it can be accepted by some backward-read DFA.

2 (30'). Give a regular expression for language

$$L = \{w \in \{0,1\}^* : \text{the number of 1's in } w \text{ is even, and the number of 0's is even}\}.$$

3 (40'). Construct NFAs corresponding to the following regular expressions:

- $0^+ \cup (01)^*$;

- $(0 \cup 1^+)0^*1^+$.