

Homework 2

Problem 1. (30 points)

1. Show that the following language is regular by drawing a NFA that accepts the language:

$$L = \{ab^n a : n \geq 0\}.$$

2. Using the procedure described in the class, convert the above NFA to an equivalent DFA. (Give the diagram of the resulting DFA.)

Problem 2. (30 points)

1. Give an NFA for the language $L_1 = \{a^n b : n \geq 0\}$.
2. Give an NFA for the language $\bar{L}_1 \cup L_1^R$.

Problem 3. (40 points)

1. Given a regular language L , show that its complement \bar{L} is a regular language.
2. Given a regular language L , show that its reverse L^R is a regular language.