

Automata Theory: Assignment 4

Due date: October 7 (Thursday)

Problem 1 (3 points)

Draw an NFA that accepts the language defined by the following grammar:

$$\begin{aligned} S &\rightarrow aaA \mid \lambda \\ A &\rightarrow bbB \mid ccC \\ B &\rightarrow bB \mid bC \\ C &\rightarrow cC \mid S \end{aligned}$$

Problem 2 (3 points)

Give a right-linear grammar for the following language:

$$\{b^n ab^m a : n \geq 2, m \geq 2\}$$

Problem 3 (4 points)

Prove or disprove the following statement:

For every regular language L , its star-closure L^* is also regular.