University of Central Florida
School of Computer Science
COT 4210 Spring 2004

Prof. Rene Peralta
Homework 3

Due date: Feb. 25

1. (with apologies to the class) Consider the language L_1 generated by the following grammar

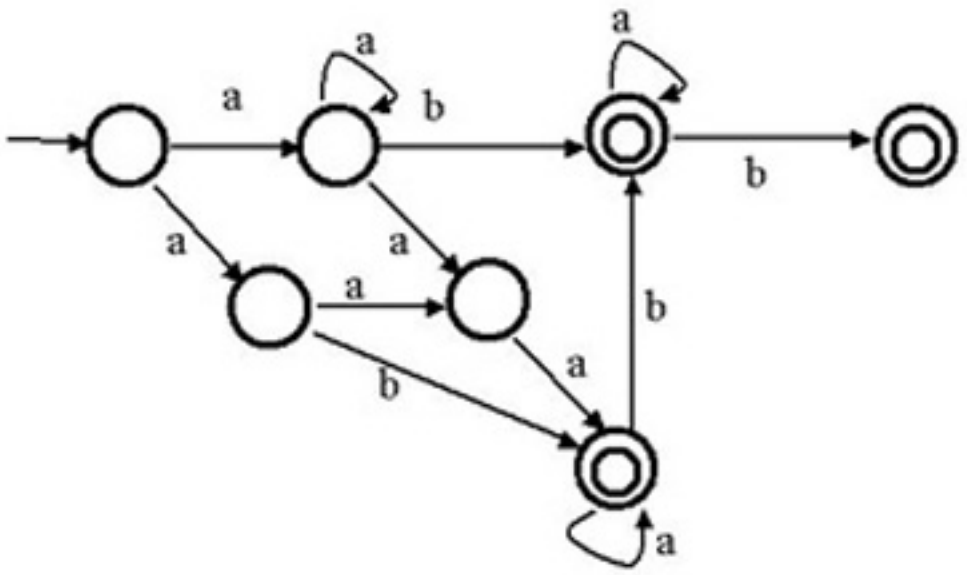
$$\begin{aligned} S &\rightarrow AB + C \\ A &\rightarrow aB + C \\ B &\rightarrow Ab + C \\ C &\rightarrow b + aaaC \end{aligned}$$

   Characterize L_1 using a combination of set notation and regular expressions.

2. Consider context-free grammars whose derivation rules have at most one non-terminal on the right hand side. Prove or disprove that the languages generated by such grammars are regular.

3. There is an erroneous statement at http://en.wikipedia.org/wiki/Myhill-Nerode_Theorem. Find it and explain what is wrong with it.

4. Find the number of equivalence classes (as defined in the statement of the Myhill-Nerode theorem) of the language generated by the following automaton.


a
a
b
a
b
a
a
a
b
a
b
a