Homework #6
CS 310 Fall 2014

Due Oct 31, 4:45 pm

p 128

0. Build a PDA in JFLAP for the language in 2.4 b.

1. Build a PDA in JFLAP for the language in 2.6 a.

2. Convert the CFG in 2.13 into a PDA using the method outlined in class. Build this PDA in JFLAP (you will need to use more than 3 states). Use Single Character Input

3. Turn the CFG in 2.14 into CNF.

4. Build a PDA to evaluate *post-fix notation expressions*. Only allow the addition operation and perform the calculations in modulo 3 arithmetic. Only allow the digits 0, 1, 2 as input. After the expression is evaluated, the top of the stack must contain the value of the expression and the string must be accepted. A sample expression is given below:

11+2+1+
Value: 2

111++
Value: 0

Any invalid expression should be rejected.

2.10 Build the PDA and write the algorithm.

2.21 Give a CFG generating the language of strings with exactly the same number of as as bs. Prove your grammar is correct. The empty string is in the language. (Hint: use induction for the proof.)

2.44
If A and B are languages, define A $\overline{\bowtie}$ B = { xy | x $\in$A and y $\in$B and |x| > |y| }. Show that if A and B are regular languages, then A $\overline{\bowtie}$ B is a CFL.

Put these answers in a GoogleDoc and share that document with me. You only need to insert a screen shot of your JFLAP work.