Theory of Computation, CSCI 438 spring 2022
Equivalence of Non-deterministic pdas and Context Free Grammars, pages 115-119
Feb. 25

2.11 Convert the CFG G_4 given in Exercise 2.1 to an equivalent PDA, using the procedure given in Theorem 2.20.

$$E \to E + T \mid T$$
$$T \to T \times F \mid F$$
$$F \to (E) \mid a$$

2.6 d Give a PDA for

$L = \{x_1\#x_2\#...\#x_k \mid k \geq 1$, each $x_i \in \{a,b\}^*$, and for some i and j, $x_i = x_j^R\}$

2. Create a pda for the language described in exercise 2.4 d. That is, for $\Sigma=\{0,1\}$

$\{w \mid$ the length of w is odd and its middle symbol is a 0$\}$

3. Define a pda for $L=\{w \mid w=w^R \text{ for } w\in \{a,b\}^*\}$ i.e. w is a palindrome

4. Let Σ ={a,b}. Consider the language Σ consisting of all strings with the same number of a's as b's. That is, L={w | $n_a(w)=n_b(w)$} (This is very different from $a^n b^n$, since in L the a's and b's can appear in any order.)

a. Create a PDA for L.

Plan for the PDA for L:

Complete definition of the PDA for L:

b. Create a grammar for the language.