CS21004 - Tutorial 6

February 14th, 2019

1. Provide Context Free Grammars (CFGs) for the following languages:
   a. $L_1 = \{ww^R | w \in \{0,1\}^*\}$
   b. $L_2 = \{a^i b^j c^k | i, j, k \geq 0 \text{ and } i = j \text{ or } j = k\}$
   c. $L_3 = \{a^{i_1} b^{i_1} a^{i_2} b^{i_2} \dots a^{i_n} b^{i_n} | n, i_1, i_2, \dots, i_n \geq 0\}$
   d. $L_4 = \{0^i 1^j 2^k | k \leq i \text{ or } k \leq j\}$
2. Use Myhill-Nerode theorem to prove non-regularity for the following languages:
   a. L_5, where L_5 is the language of palindromes over $\{a, b\}$
   b. $L_6 = \{uu^R v | u, v \in \{a, b\}^+\}$