CS381 Homework Assignment Number 7, due Friday, Oct. 14, 2005

Please write your name and net id on the upper right corner of each page.

1. Write a context-free grammar for the language $\left\{a^i b^j c^k \mid either\ i = j\ or\ i = k\right\}$.

2. Write a cfg for the complement of $\left\{ww^R \mid w \in (a+b)^*\right\}$

3. Write a cfg for the set of all strings with twice as many b's as a's.

4. Describe how to construct a cfg that will generate a given regular set. Describe each quantity in G=(V, Σ, P, S).

5. Write a cfg for the complement of $\left\{\left(10^n\right)^n 1 \mid n \geq 0\right\}$. There are n blocks each containing n 0's. Hint: guess what the error in a string is. Either there are two blocks with different numbers of 0's or the number of blocks of 0's differs from the number of 0's in the first block.