Theory of Computation
Homework 7.

Due Date: Thursday, October 25.

1. Sipser text, no. 2.14 (1st and 2nd editions): This problem asks you to convert a CFG to CNF form. You may use the procedure as shown in class or as shown in the textbook (they use the same steps but in a different order).

2. Sipser text, no. 2.6b,d (both editions). Give CFG’s to generate the given languages.

3. Let $A$ be a CFL generated by a CFG $G$ with start symbol $S$. Consider adding the rule $S \rightarrow SS$ to the grammar $G$; suppose the changed grammar generates language $B$. Give an example language $A$ for which $B \neq A^*$.

4. Let $C$ be a language over the alphabet $\{a, b\}$ and let $\text{Suffix}(C) = \{w \mid \text{there is a } u \in \{a, b\}^* \text{ with } uw \in C\}$. Show that if $C$ is recognized by a pda then so is $\text{Suffix}(C)$. 