CSE 322: Introduction to Formal Models in Computer Science
Assignment #6
February 25, 2002
due: Monday, March 4

1. Convert the context-free grammar G_4 given in Example 2.3 into Chomsky normal form, using the procedure from the class handout. Show a parse tree for the string $(a+a) \times a$ in your Chomsky normal form grammar.

2. Give a pushdown automaton for the language of Exercise 2.6(c). You should specify the transition function by giving the state diagram. You need not turn in a proof of correctness, though it would be good reassurance for yourself to do such a proof.

3. Give a pushdown automaton for the language $\{a^m b^n \mid m \leq n \leq 2m\}$. You should specify the transition function by giving the state diagram. You need not turn in a proof of correctness, though it would be good reassurance for yourself to do such a proof.

4. Use the procedure of Lemma 2.13 to convert the grammar G_3 of Example 2.2 into an equivalent pushdown automaton M. You may use the shorthand allowing the automaton to push more than one symbol in a single step in your state diagram. Show an accepting computation of M on the input *aababb*.