Homework 3 (Due May 9 Tuesday)

Problem 1 (10pts)

What is ambiguous grammars? Is the following grammar ambiguous? Justify your answer.

$S \rightarrow aSbS|bSaS|\varepsilon$

Problem 2 (10pts)

Given the grammar G(S): **S→S+aF|aF|+aF F→*aF|*a**

(1) Give the parse tree for the string **a*a*a+a*a**

(2) Give the canonical reduction for the string **a*a*a+a*a**, and the handle of each sentential form at each step.

Problem 3 (15pts)

Given the grammar G[E]: **E → (L)|a L → L, E | E**

(1) Try to modify the given grammar to LL(1) grammar.

(2) Compute FIRST and FOLLOW of the result grammar.

(3) Construct a predictive parse table for the result grammar.

Problem 4 (15pts)

Given the grammar G[E]: **E → (L)|a L → L, E | E**

(1) Construct LR(0) automaton for G[E]

(2) Using the LR(0) automaton to parse the input string **(a, (a, a))** .

(3) Construct SLR(1) parsing table for G[E].