Devin Johnson

CS 536 HW 4

Problem 1:

\\\CFG\\\	\\\Translation\\\
program → MAIN LPAREN RPAREN LCURLY list RCURLY	program.trans = list.trans
list → list oneItem	list2.trans = list1.trans union oneItem.trans
| epsilon	list.trans = { }
oneItem → decl	oneItem.trans = decl.trans
| stmt	oneItem.trans = stmt.trans
decl → BOOL ID SEMICOLON	decl.trans = { }
| INT ID SEMICOLON	decl.trans = { }
stmt → ID ASSIGN exp SEMICOLON	stmt.trans = { ID.value } union exp.trans
| IF LPAREN exp RPAREN stmt	stmt.trans = exp.trans union stmt.trans
| LCURLY list RCURLY	stmt.trans = list.trans
exp → exp PLUS exp	exp3.trans = exp1 union exp2
| exp LESS exp	exp3.trans = exp1 union exp2
| exp EQUALS exp	exp3.trans = exp1 union exp2
| ID	exp.trans = { ID.value }
| BOOLLITERAL	exp.trans = { }
| INTLITERAL	exp.trans = { }

Please note, I'm assuming our sets are mathematical sets and so the set expressions follow standard set expressions. So, for union, no duplicates would be made.

Problem 2: