

EELS 665

Rixiang Lin

2856114

HWS.

program  $\rightarrow$  MAN  $\angle$  PAREN RPAREN LCURLY list RCURLY

Translation rules

program.trans = list.trans

question 1:

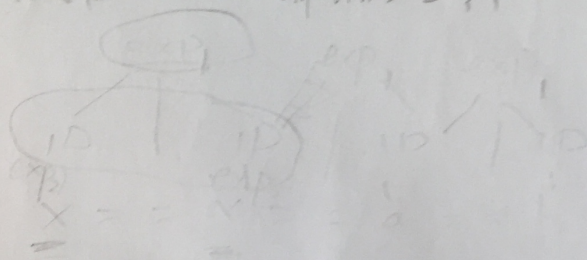
list  $\rightarrow$  list oneItem list1.trans =  $(list2.trans \cap oneItem.trans) \cup (list2.trans - oneItem.trans)$   
| epsilon list.trans =  $\{ \}$

oneItem  $\rightarrow$  decl oneItem.trans = decl.trans  
| stmt oneItem.trans = stmt.trans

decl  $\rightarrow$  BOOL ID SEMICOLON decl.trans =  $\{ \}$   
| INT ID SEMICOLON decl.trans =  $\{ \}$

stmt  $\rightarrow$  ID ASSIGN exp SEMICOLON stmt.trans =  $(ID.value \cap exp.trans) \cup (ID.value - exp.trans)$   
| IF LPAREN exp RPAREN stmt stmt.trans =  $(exp.trans \cap stmt.trans) \cup (exp.trans - stmt.trans) \cup (stmt.trans - exp.trans)$   
| LCURLY list RCURLY stmt.trans = list.trans

exp  $\rightarrow$  exp PLUS exp  $\rightarrow$  exp1.trans =  $(exp2.trans \cap exp3.trans) \cup (exp2.trans - exp3.trans)$   
| exp LESS exp  $\rightarrow$   $\cup (exp3.trans - exp2.trans)$   
| exp<sub>2</sub> EQUALS exp<sub>3</sub>  $\rightarrow$   $\cup (exp2.trans \cap exp3.trans)$   
| ID exp.trans =  $\{ ID.value \}$   
| BOOL LITERAL exp.trans =  $\{ \}$   
| INT LITERAL exp.trans =  $\{ \}$



$(\{ \} \cap \{ \}) \cup (\{ \} - \{ \}) \cup (\{ \} - \{ \})$

$\{ \} \cup \{ \} \cup \{ \}$



