CS 4630 - Programming Language Translation
Fall 2004
MiniJava Grammar Specification

Program → MainClass ClassDecl*
MainClass → class id { public static void main ( String [ ] id ) { Statement } }
ClassDecl → class id { VarDecl* MethodDecl* }
→ class id extends id { VarDecl* MethodDecl* }
VarDecl → Type id ;
MethodDecl → public Type id ( FormalList ) { VarDecl* Statement* return Exp ; }
FormalList → Type id FormalRest* →
FormalRest → , Type id
Type → int [ ] → boolean → int → id 
Statement → { Statement* }
→ if ( Exp ) Statement else Statement 
→ while ( Exp ) Statement 
→ System.out.println ( Exp ) ; 
→ id = Exp ; 
→ id [ Exp ] = Exp ;
Exp → Exp OP Exp → Exp [ Exp ] → Exp . length → Exp . id ( ExpList ) → INT_CONSTANT → true → false → id → this → new int [ Exp ] → new id ( ) → ! Exp → ( Exp )
ExpList → Exp ExpRest* →
ExpRest → , Exp

Notes:
• Nonterminals are shown in italics; for example, Statement.
• Terminals are shown in bold text; for example, while and ).
• The notation N*, where N is a nonterminal, means 0, 1, or more repetitions of N.
• The notation OP stands for five binary operators: && < + - * .
• The notation id stands for any legal identifier.
• The notation INT_CONSTANT stands for any legal integer constant.