

TruPL Grammar v1.0

- Non-terminals (i.e. PROGRAM, IF_STMT) are shown in ALL CAPS.
- Keywords (i.e. *program*, *if*) are shown in *lowercase italics*.
- Non-keyword terminals (i.e. `identifier`, `mulop`) and special symbols (i.e. `'`, `;`, `'+'`) are shown in `typewriter font`.

PROGRAM	→	<i>program</i> <code>identifier</code> ; DECL_LIST BLOCK ;
DECL_LIST	→	VARIABLE_DECL_LIST PROCEDURE_DECL_LIST
VARIABLE_DECL_LIST	→	VARIABLE_DECL ; VARIABLE_DECL_LIST λ
VARIABLE_DECL	→	IDENTIFIER_LIST : STANDARD_TYPE
PROCEDURE_DECL_LIST	→	PROCEDURE_DECL ; PROCEDURE_DECL_LIST λ
IDENTIFIER_LIST	→	IDENTIFIER_LIST , <code>identifier</code> <code>identifier</code>
STANDARD_TYPE	→	<i>int</i> <i>bool</i>
BLOCK	→	<i>begin</i> STMT_LIST <i>end</i>
PROCEDURE_DECL	→	<i>procedure</i> <code>identifier</code> (PROCEDURE_ARGS) VARIABLE_DECL_LIST BLOCK
PROCEDURE_ARGS	→	FORMAL_PARM_LIST λ
FORMAL_PARM_LIST	→	VARIABLE_DECL VARIABLE_DECL ; FORMAL_PARM_LIST
STMT_LIST	→	STMT_LIST STMT ; STMT ; ;

STMT	→	ASSIGNMENT_STMT IF_STMT WHILE_STMT PRINT_STMT PROCEDURE_CALL_STMT
ASSIGNMENT_STMT	→	<code>identifier :=</code> EXPR
IF_STMT	→	<i>if</i> EXPR <i>then</i> BLOCK <i>if</i> EXPR <i>then</i> BLOCK <i>else</i> BLOCK
WHILE_STMT	→	<i>while</i> EXPR <i>loop</i> BLOCK
PRINT_STMT	→	<i>print</i> EXPR
PROCEDURE_CALL_STMT	→	<code>identifier (</code> EXPR_LIST <code>)</code>
EXPR_LIST	→	ACTUAL_PARM_LIST λ
ACTUAL_PARM_LIST	→	EXPR EXPR , ACTUAL_PARM_LIST
EXPR	→	SIMPLE_EXPR SIMPLE_EXPR <i>relop</i> SIMPLE_EXPR
SIMPLE_EXPR	→	TERM SIMPLE_EXPR <i>addop</i> TERM
TERM	→	FACTOR TERM <i>mulop</i> FACTOR
FACTOR	→	<code>identifier</code> <code>num</code> <code>(</code> EXPR <code>)</code> SIGN FACTOR
SIGN	→	<code>+</code> <code>-</code> <i>not</i>