

TruPL Grammar v2.0 - an LL(1) version of TruPL v1.2

- 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	→	<code>identifier</code> IDENTIFIER_LIST_PRM
IDENTIFIER_LIST_PRM	→	, <code>identifier</code> IDENTIFIER_LIST_PRM λ
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	→	<code>identifier</code> IDENTIFIER_LIST_PRM : STANDARD_TYPE FORMAL_PARM_LIST_HAT
FORMAL_PARM_LIST_HAT	→	; FORMAL_PARM_LIST λ
STMT_LIST	→	STMT ; STMT_LIST_PRM ; STMT_LIST_PRM
STMT_LIST_PRM	→	STMT ; STMT_LIST_PRM λ

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