TruPL Grammar v1.2 - TruPL 1.2, Left Factored

- 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	$\longrightarrow$	*program* `identifier` ; DECL_LIST BLOCK ;
DECL_LIST	$\longrightarrow$	VARIABLE_DECL_LIST PROCEDURE_DECL_LIST
VARIABLE_DECL_LIST	$\longrightarrow$	VARIABLE_DECL ; VARIABLE_DECL_LIST
		$\mid \lambda$
VARIABLE_DECL	$\longrightarrow$	IDENTIFIER_LIST : STANDARD_TYPE
PROCEDURE_DECL_LIST	$\longrightarrow$	PROCEDURE_DECL ; PROCEDURE_DECL_LIST
		$\mid \lambda$
IDENTIFIER_LIST	$\longrightarrow$	`identifier` IDENTIFIER_LIST_PRM
IDENTIFIER_LIST_PRM	$\longrightarrow$	`,` `identifier` IDENTIFIER_LIST_PRM
		$\mid \lambda$
STANDARD_TYPE	$\longrightarrow$	*int*
		$\mid$ *bool*
BLOCK	$\longrightarrow$	*begin* STMT_LIST *end*
PROCEDURE_DECL	$\longrightarrow$	*procedure* `identifier` (PROCEDURE_ARGS) VARIABLE_DECL_LIST BLOCK
PROCEDURE_ARGS	$\longrightarrow$	FORMAL_PARM_LIST
		$\mid \lambda$
FORMAL_PARM_LIST	$\longrightarrow$	`identifier` IDENTIFIER_LIST_PRM : STANDARD_TYPE FORMAL_PARM_LIST_HAT
FORMAL_PARM_LIST_HAT	$\longrightarrow$	; FORMAL_PARM_LIST
		$\mid \lambda$
STMT_LIST	$\longrightarrow$	STMT ; STMT_LIST_PRM
		$\mid$; STMT_LIST_PRM
STMT_LIST_PRM	$\longrightarrow$	STMT ; STMT_LIST_PRM
		$\mid \lambda$

STMT	$\longrightarrow$	ASSIGNMENT_STMT
		| IF_STMT
		| WHILE_STMT
		| PRINT_STMT
		| PROCEDURE__CALL_STMT
ASSIGNMENT_STMT	$\longrightarrow$	`identifier :=` EXPR
IF_STMT	$\longrightarrow$	*if* EXPR *then* BLOCK IF_STMT_HAT
IF_STMT_HAT	$\longrightarrow$	*else* BLOCK
		| λ
WHILE_STMT	$\longrightarrow$	*while* EXPR *loop* BLOCK
PRINT_STMT	$\longrightarrow$	*print* EXPR
PROCEDURE_CALL_STMT	$\longrightarrow$	`identifier (` EXPR_LIST `)`
EXPR_LIST	$\longrightarrow$	ACTUAL_PARM_LIST
		| λ
ACTUAL_PARM_LIST	$\longrightarrow$	EXPR ACTUAL_PARM_LIST_HAT
ACTUAL_PARM_LIST_HAT	$\longrightarrow$	, ACTUAL_PARM_LIST
		| λ
EXPR	$\longrightarrow$	SIMPLE_EXPR EXPR_HAT
EXPR_HAT	$\longrightarrow$	`relop` SIMPLE_EXPR
		| λ
SIMPLE_EXPR	$\longrightarrow$	TERM SIMPLE_EXPR_PRM
SIMPLE_EXPR_PRM	$\longrightarrow$	`addop` TERM SIMPLE_EXPR_PRM
		| λ
TERM	$\longrightarrow$	FACTOR TERM_PRM
TERM_PRM	$\longrightarrow$	`mulop` FACTOR TERM_PRM
		| λ
FACTOR	$\longrightarrow$	`identifier`
		| `num`
		| (EXPR)
		| SIGN FACTOR
SIGN	$\longrightarrow$	`+`
		| `-`
		| *not*