

### Program:

program = program-heading ';' program-block '.'  
program-heading = 'program' identifier ['(' program-parameter-list ')']<sub>opt</sub>  
program-parameter-list = identifier-list  
program-block = block

### Block:

block = constant-definition-part<sub>opt</sub> type-definition-part<sub>opt</sub>  
variable-declaration-part<sub>opt</sub>  
procedure-and-function-declaration-part<sub>opt</sub>  
statement-part

### Constant definition part:

constant-definition-part = 'const' const-definition ';' [const-definition ';' ]<sup>\*</sup>  
const-definition = identifier '=' constant  
constant = sign<sub>opt</sub> (unsigned-number | constant-identifier)  
| character-string  
constant-identifier = identifier

### Type definition part:

type-definition-part = 'type' type-definition ';' [type-definition ';' ]<sup>\*</sup>  
type-definition = identifier '=' type-denoter

### About type:

type-denoter = type-identifier | array-type  
type-identifier = identifier  
array-type = 'array' index-type-list 'of' component-type  
index-type-list = index-type [' index-type']<sup>\*</sup>  
index-type = type-identifier  
component-type = type-denoter

### Variable declaration part:

variable-declaration-part = 'var' variable-declaration ';' [variable-declaration ';' ]<sup>\*</sup>  
variable-declaration = identifier-list ':' type-denoter

### Procedure and function declaration part:

procedure-and-function-declaration-part	=	[(procedure-declaration   function-declaration) ';' ] <sup>+</sup>
procedure-declaration	=	procedure-heading ';' procedure-block
procedure-heading	=	'procedure' identifier [formal-parameter-list] <sub>opt</sub>
procedure-block	=	block
function-declaration	=	function-heading ';' function-block
function-heading	=	'function' identifier [formal-parameter-list] <sub>opt</sub> ' :' result-type
function-block	=	block
result-type	=	type-identifier
formal-parameter-list	=	'(' formal-parameter-section [';' formal-parameter-section]* ')'
formal-parameter-section	=	value-parameter-specification   variable-parameter-specification
value-parameter-specification	=	identifier-list ' :' type-identifier
variable-parameter-specification	=	'var' identifier-list ' :' type-identifier

### Statement part:

statement-part	=	compound-statement
compound-statement	=	'begin' statement-sequence 'end'
statement-sequence	=	statement [';' statement]*

### About statement:

statement	=	simple-statement   structured-statement
simple-statement	=	empty-statement   assignment-statement   procedure-statement
empty-statement	=	ε
assignment-statement	=	(variable-access   function-identifier) ' :=' expression
procedure-statement	=	procedure-identifier (actual-parameter-list <sub>opt</sub>   read-parameter-list   write-parameter-list)
structured-statement	=	compound-statement   conditional-statement   repetitive-statement
conditional-statement	=	if-statement
repetitive-statement	=	while-statement   for-statement
if-statement	=	'if' Boolean-expression 'then' statement else-part <sub>opt</sub>
else-part	=	'else' statement
while-statement	=	'while' Boolean-expression 'do' statement
for-statement	=	'for' control-variable ' :=' initial-value ('to'   'downto') final-value 'do' statement

variable-access	=	entire-variable   component-variable
entire-variable	=	variable-identifier
variable-identifier	=	identifier
component-variable	=	indexed-variable
indexed-variable	=	array-variable
		'[' index-expression [' index-expression]* ']
array-variable	=	variable-access
index-expression	=	expression
function-identifier	=	identifier
procedure-identifier	=	identifier
actual-parameter-list	=	'(' actual-parameter [' actual-parameter]* ')'
actual-parameter	=	expression   variable-access
read-parameter-list	=	'(' variable-access [' variable-access]* ')'
write-parameter-list	=	'(' write-parameter [' write-parameter]* ')'
write-parameter	=	expression
control-variable	=	entire-variable
initial-value	=	expression
final-value	=	expression
Boolean-expression	=	expression

## Expression

expression	=	simple-expression [relational-operator simple-expression] <sub>opt</sub>
simple-expression	=	sign <sub>opt</sub> term [adding-operator term]*
term	=	factor [multiplying-operator factor]*
factor	=	variable-access   unsigned-constant   function-designator
		'(' expression ')'   'not' factor
function-designator	=	function-identifier actual-parameter-list <sub>opt</sub>

## Other

identifier-list	=	identifier [' identifier]*
relational-operator	=	'<'   '='   '>'   '<='   '>='   '<>'
adding-operator	=	'+'   '-'   'or'
multiplying-operator	=	'*'   '/'   'div'   'mod'   'and'