## Γραμματική της Ciscal

```
<PROGRAM>
                    ::= program ID <BLOCK>
<BLOCK>
                    ::= { <DECLARATIONS> <SUBPROGRAMS> <SEQUENCE> }
<DECLARATIONS>
                    ::= \varepsilon | declare <VARLIST> enddeclare
<VARLIST>
                    ::= \epsilon \mid ID (, ID)^*
<SUBPROGRAMS>
                    ::= ( <FUNC> ) *
<FUNC>
                    ::= procedure ID <FUNCBODY> |
                          function ID <FUNCBODY>
<FUNCBODY>
                    ::= <FORMALPARS> <BLOCK>
<FORMALPARS>
                    ::= ( \varepsilon | <FORMALPARLIST> )
<FORMALPARLIST>
                    ::= <FORMALPARITEM> ( , <FORMALPARITEM> )*
                   ::= in ID | inout ID
<FORMALPARITEM>
                    ::= <STATEMENT> (; <STATEMENT>)*
<SEQUENCE>
<BRACKETS-SEQ>
                    ::= { <SEQUENCE> }
<BRACK-OR-STAT>
                    ::= <BRACKETS-SEQ> | <STATEMENT>;
<STATEMENT>
                    ::= ε |
                           <ASSIGNMENT-STAT> |
                           <IF-STAT> |
                           <DO-WHILE-STAT> |
                           <WHILE-STAT> |
                           <SELECT-STAT> |
                           <EXIT-STAT> |
                           <RETURN-STAT> |
                           <PRINT-STAT> |
                           <CALL-STAT>
<ASSIGNMENT-STAT> ::= ID := <EXPRESSION>
<IF-STAT>
                    ::= if (<CONDITION>) <BRACK-OR-STAT> <ELSEPART>
<ELSEPART>
                    ::= \varepsilon | else <BRACK-OR-STAT>
```

Πανεπιστήμιο Ιωαννίνων Τμήμα Μηχ. Η/Υ και Πληροφορικής "Μεταφραστές" Διδάσκων: Γ. Μανής Φεβρουάριος 2017

```
::= while (<CONDITION>) <BRACK-OR-STAT>
<WHILE-STAT>
<SELECT-STAT>
                    ::= select (ID)
                           (CONST: <BRACK-OR-STAT>)*
                           DEFAULT: <BRACK-OR-STAT>
<DO-WHILE-STAT>
                    ::= do <BRACK-OR-STAT> while (<CONDITION>)
<EXIT-STAT>
                    ::= exit
<RETURN-STAT>
                    ::= return (<EXPRESSION>)
<PRINT-STAT>
                    ::= print (<EXPRESSION>)
<CALL-STAT>
                    ::= call ID <ACTUALPARS>
<ACTUALPARS>
                    ::= ( \varepsilon | <ACTUALPARLIST> )
<ACTUALPARLIST>
                    ::= <ACTUALPARITEM> (, <ACTUALPARITEM>)*
<ACTUALPARITEM>
                    ::= in <EXPRESSION> | inout ID
<CONDITION>
                    ::= <BOOLTERM> (or <BOOLTERM>)*
<BOOLTERM>
                    ::= <BOOLFACTOR> (and <BOOLFACTOR>)*
<BOOLFACTOR>
                    ::=not [<CONDITION>] |
                           [<CONDITION>] |
                           <EXPRESSION> <RELATIONAL-OPER> <EXPRESSION>
<EXPRESSION>
                    ::= <OPTIONAL-SIGN> <TERM> ( <ADD-OPER> <TERM>)*
                    ::= <FACTOR> (<MUL-OPER> <FACTOR>)*
<TERM>
<FACTOR>
                    ::= CONSTANT |
                           (<EXPRESSION>) |
                           ID <IDTAIL>
<IDTAIL>
                    ::= \epsilon \mid <ACTUALPARS>
<RELATIONAL-OPER> ::= = | < | <= | <> | >= | >
<ADD-OPER>
                    ::= + | -
<MUL-OPER>
                    ::= * | /
<OPTIONAL-SIGN>
                    ::= \varepsilon \mid \langle ADD - OPER \rangle
```