Syntax von Pascal

In Backus-Naur Form (BNF)

Bemerkung : A::={B} ⇔ A::= <empty> | AB ⇔ A → ε | AB

<program> ::= ***program*** <identifier> ; <block> . <identifier> ::= <letter > {<letter or digit>}

<letter or digit> ::= <letter> | <digit>

<block> ::= <label declaration part> <constant definition part> <type definition part> <variable declaration part>

<procedure and function declaration part> <statement part>

<label declaration part> ::= <empty> | ***label*** <label> {, <label>} ;

<label> ::= <unsigned integer>

<constant definition part> ::= <empty> | ***const*** <constant definition> { ; <constant definition>} ; <constant definition> ::= <identifier> = <constant> <constant> ::= <unsigned number> | <sign> <unsigned number> | <constant identifier> | <sign> <constant identifier> |

<string>

<unsigned number> ::= <unsigned integer> | <unsigned real>

<unsigned integer> ::= <digit> {<digit>}

<unsigned real> ::= <unsigned integer> . <unsigned integer> | <unsigned integer> . <unsigned integer> E <scale factor>|

<unsigned integer> E <scale factor>

<scale factor> ::= <unsigned integer> | <sign> <unsigned integer>

<sign> ::= + | -

<constant identifier> ::= <identifier>

<string> ::= '<character> {<character>}'

<type definition part> ::= <empty> | ***type*** <type definition> {;<type definition>};

<type definition> ::= <identifier> = <type>

<type> ::= <simple type> | <structured type> | <pointer type>

<simple type> ::= <scalar type> | <subrange type> | <type identifier>

<scalar type> ::= (<identifier> {,<identifier>})

<subrange type> ::= <constant> .. <constant>

<type identifier> ::= <identifier>

<structured type> ::= <array type> | <record type> | <set type> | <file type>

<array type> ::= ***array*** [<index type>{,<index type>}] ***of*** <component type>

<index type> ::= <simple type>

<component type> ::= <type>

<record type> ::= ***record*** <field list> ***end***

<field list> ::= <fixed part> | <fixed part> ; <variant part> | <variant part>

<fixed part> ::= <record section> {;<record section>}

<record section> ::= <field identifier> {, <field identifier>} : <type> | <empty>

<variant type> ::= ***case*** <tag field> <type identifier> ***of*** <variant> { ; <variant>}

<tag field> ::= <field identifier> : | <empty>

<variant> ::= <case label list> : (<field list>) | <empty>

<case label list> ::= <case label> {, <case label>}

<case label> ::= <constant>

<set type> ::=***set of*** <base type>

<base type> ::= <simple type>

<file type> ::= ***file of*** <type>

<pointer type> ::= <type identifier>

<variable declaration part> ::= <empty> | ***var*** <variable declaration> {; <variable declaration>} ;

<variable declaration> ::= <identifier> {,<identifier>} : <type>

<procedure and function declaration part> ::= {<procedure or function declaration > ;}

<procedure or function declaration > ::= <procedure declaration > | <function declaration >

<procedure declaration> ::= <procedure heading> <block>

<procedure heading> ::= ***procedure*** <identifier> ; |

procedure <identifier> (<formal parameter section> {;<formal parameter section>});

<formal parameter section> ::= <parameter group> | ***var*** <parameter group> |

function <parameter group> | ***procedure*** <identifier> { , <identifier>}

<parameter group> ::= <identifier> {, <identifier>} : <type identifier>

<function declaration> ::= <function heading> <block>

<function heading> ::= ***function*** <identifier> : <result type> ; |

function <identifier> (<formal parameter section> {;<formal parameter section>}) : <result type> ;

<result type> ::= <type identifier>

<statement part> ::= <compund statement>

<statement> ::= <unlabelled statement> | <label> : <unlabelled statement>

<unlabelled statement> ::= <simple statement> | <structured statement>

<simple statement> ::= <assignment statement> | <procedure statement> | <go to statement> | <empty statement>

<assignment statement> ::= <variable> := <expression> | <function identifier> := <expression>

<variable> ::= <entire variable> | <component variable> | <referenced variable>

<entire variable> ::= <variable identifier>

<variable identifier> ::= <identifier>

<component variable> ::= <indexed variable> | <field designator> | <file buffer>

<indexed variable> ::= <array variable> [<expression> {, <expression>}]

<array variable> ::= <variable>

<field designator> ::= <record variable> . <field identifier>

<record variable> ::= <variable>

<field identifier> ::= <identifier>

<file buffer> ::= <file variable>

<file variable> ::= <variable>

<referenced variable> ::= <pointer variable>

<pointer variable> ::= <variable>

<expression> ::= <simple expression> | <simple expression> <relational operator> <simple expression>

<relational operator> ::= = | <> | < | <= | >= | > | ***in***

<simple expression> ::= <term> | <sign> <term>| <simple expression> <adding operator> <term>

<adding operator> ::= + | - | ***or***

<term> ::= <factor> | <term> <multiplying operator> <factor>

<multiplying operator> ::= * | / | ***div*** | ***mod*** | ***and***

<factor> ::= <variable> | <unsigned constant> | (<expression>) | <function designator> | <set> | ***not*** <factor>

<unsigned constant> ::= <unsigned number> | <string> | < constant identifier> < ***nil***>

<function designator> ::= <function identifier> | <function identifier (<actual parameter> {, <actual parameter>})

<function identifier> ::= <identifier>

<set> ::= [<element list>]

<element list> ::= <element> {, <element> } | <empty>

<element> ::= <expression> | <expression> .. <expression>

<procedure statement> ::= <procedure identifier> | <procedure identifier> (<actual parameter> {, <actual parameter> })

<procedure identifier> ::= <identifier>

<actual parameter> ::= <expression> | <variable> | <procedure identifier> | <function identifier>

<go to statement> ::= ***goto*** <label>

<empty statement> ::= <empty>

<empty> ::=

<structured statement> ::= <compound statement> | <conditional statement> | <repetitive statement> | <with statement>

<compound statement> ::= ***begin*** <statement> {; <statement> } ***end***;

<conditional statement> ::= <if statement> | <case statement>

<if statement> ::= ***if*** <expression> ***then*** <statement> | ***if*** <expression> ***then*** <statement> ***else*** <statement>

<case statement> ::= ***case*** <expression> ***of*** <case list element> {; <case list element> } ***end***

<case list element> ::= <case label list> : <statement> | <empty>

<case label list> ::= <case label> {, <case label> }

<repetitive statement> ::= <while statement> | <repeat statemant> | <for statement>

<while statement> ::= ***while*** <expression> ***do*** <statement>

<repeat statement> ::= ***repeat*** <statement> {; <statement>} ***until*** <expression>

<for statement> ::= ***for*** <control variable> := <for list> ***do*** <statement>

<control variable> ::= <identifier>

<for list> ::= <initial value> ***to*** <final value> | <initial value> ***downto*** <final value>

<initial value> ::= <expression>

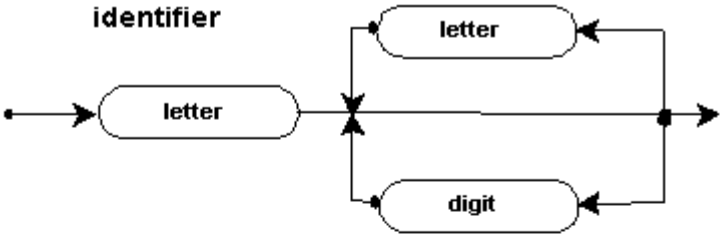
<final value> ::= <expression>

<with statement> ::= ***with*** <record variable list> ***do*** <statement>

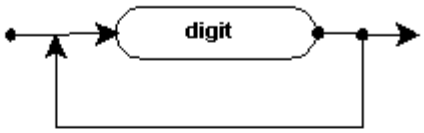
<record variable list> ::= <record variable> {, <record variable>}

In Diagrammform

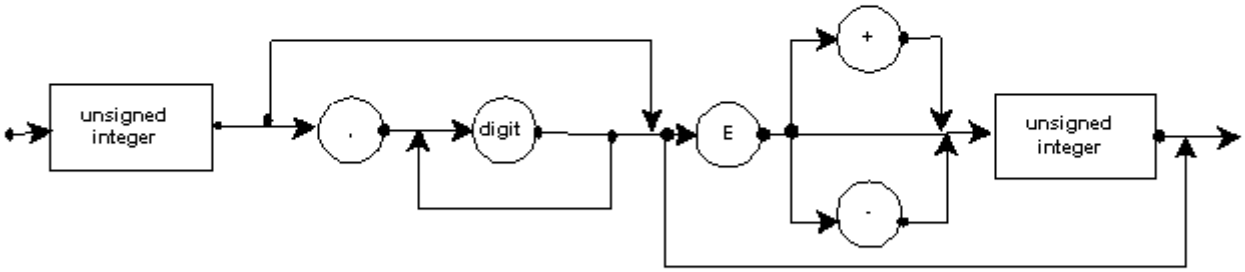
identifier



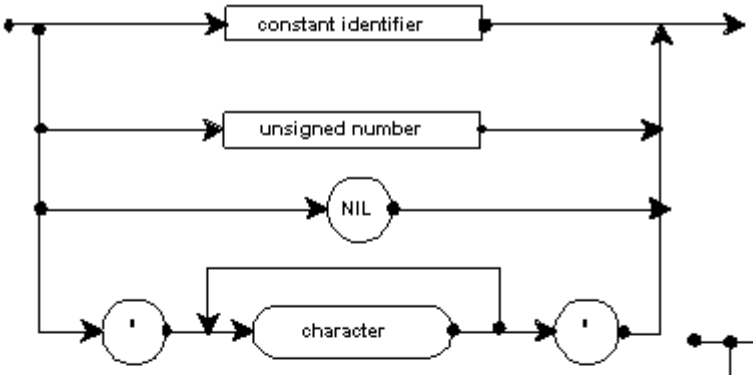
unsigned integer



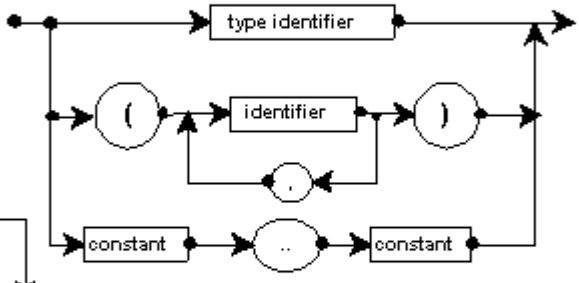
unsigned number



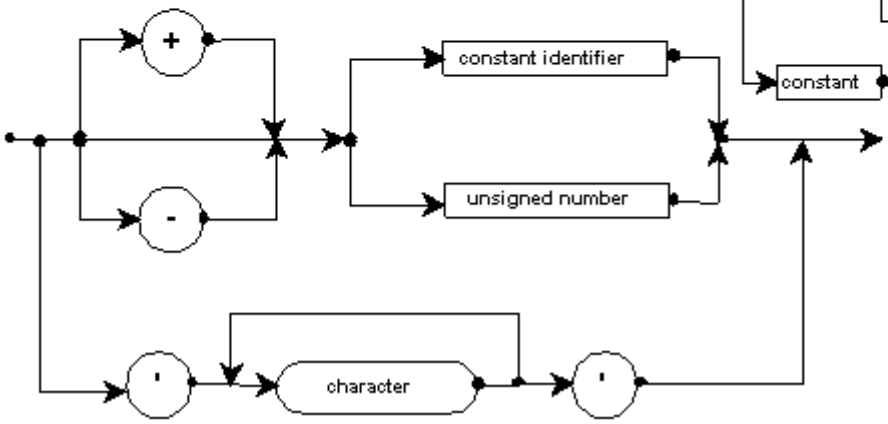
unsigned constant



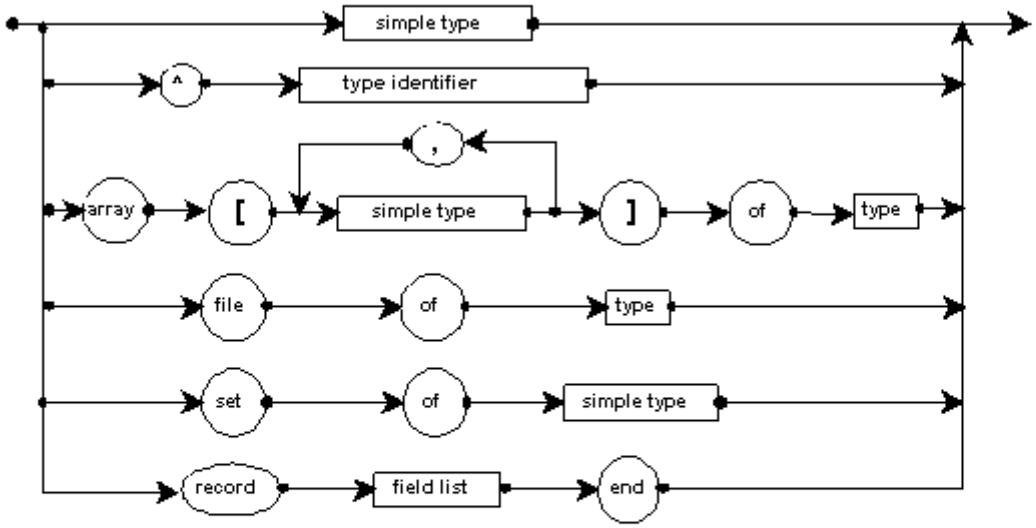
simple type



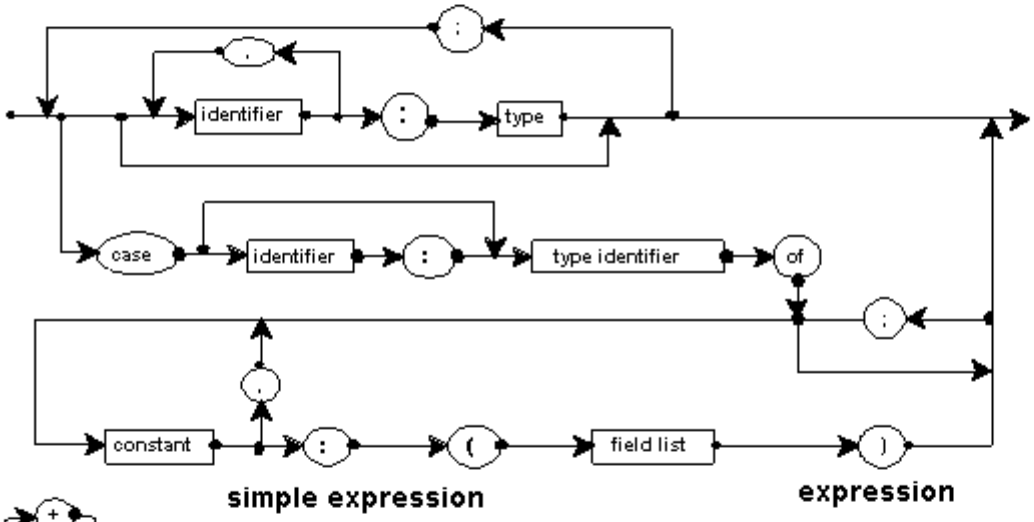
constant



type

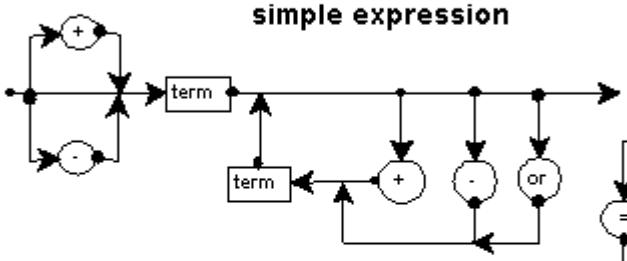


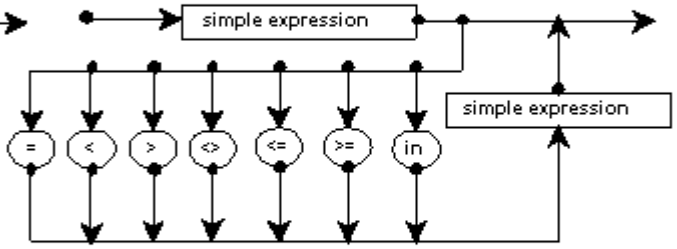
field list

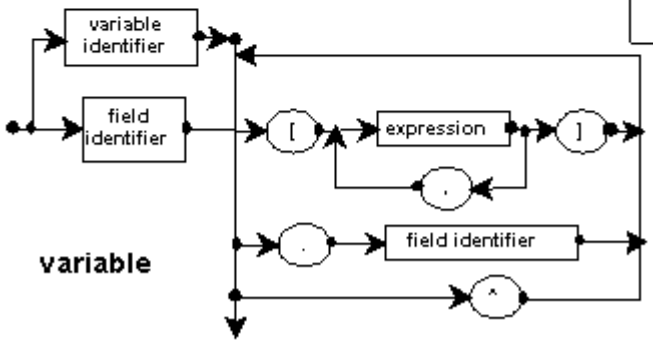


simple expression

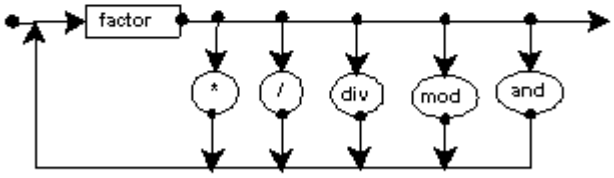
expression



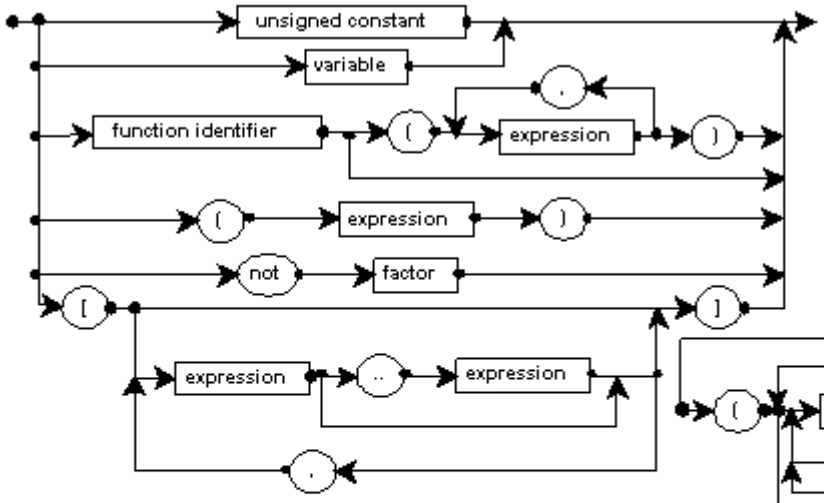


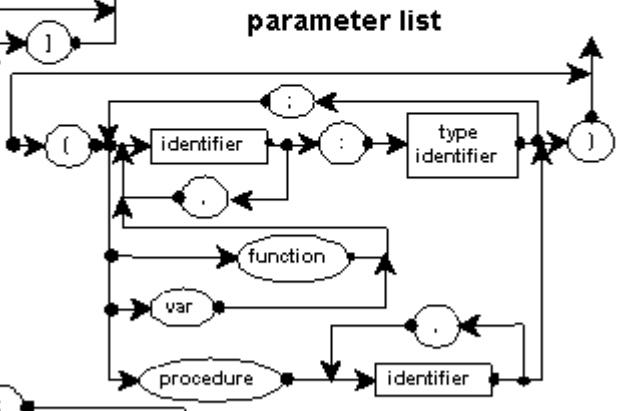


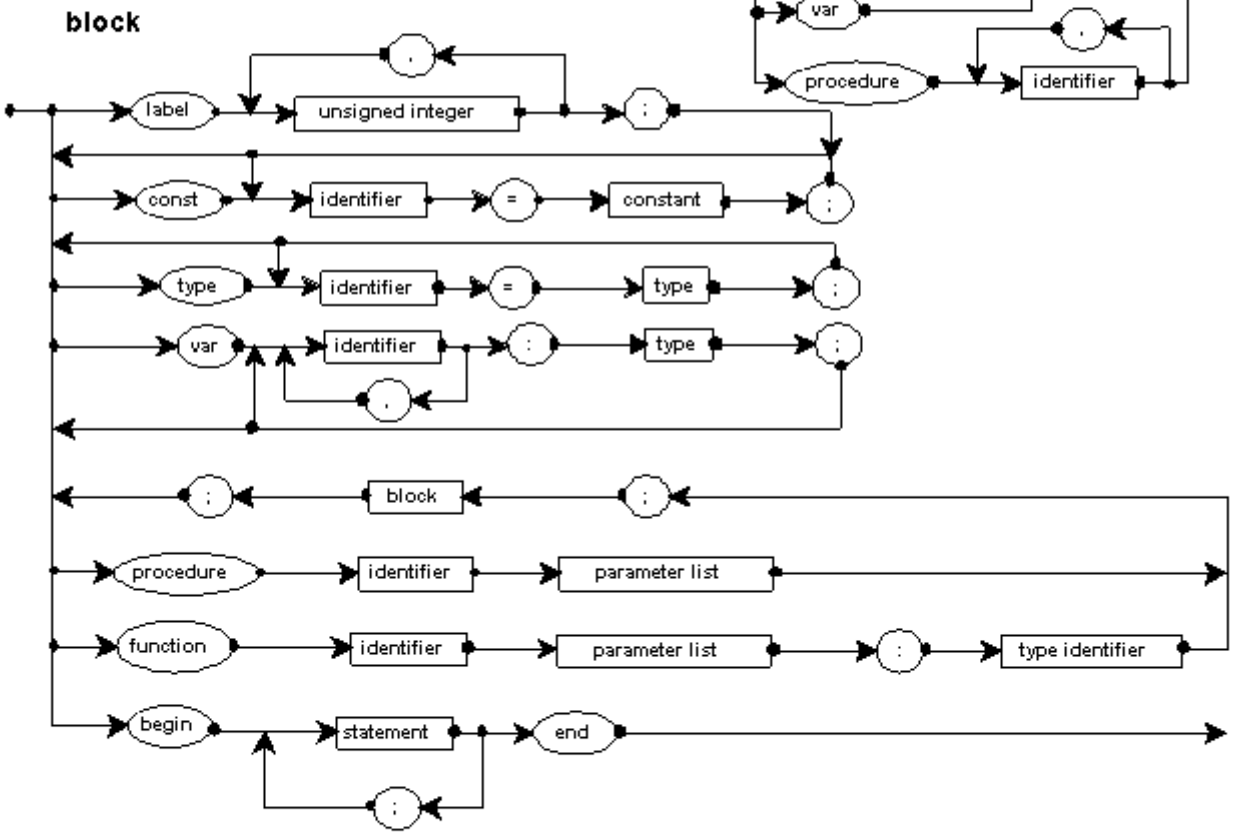
variable

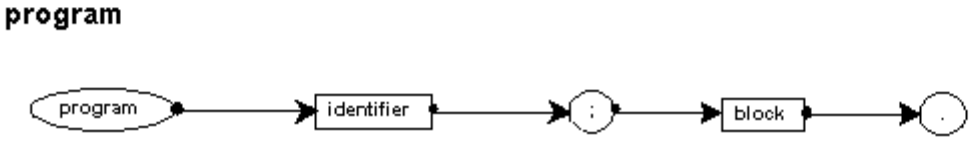


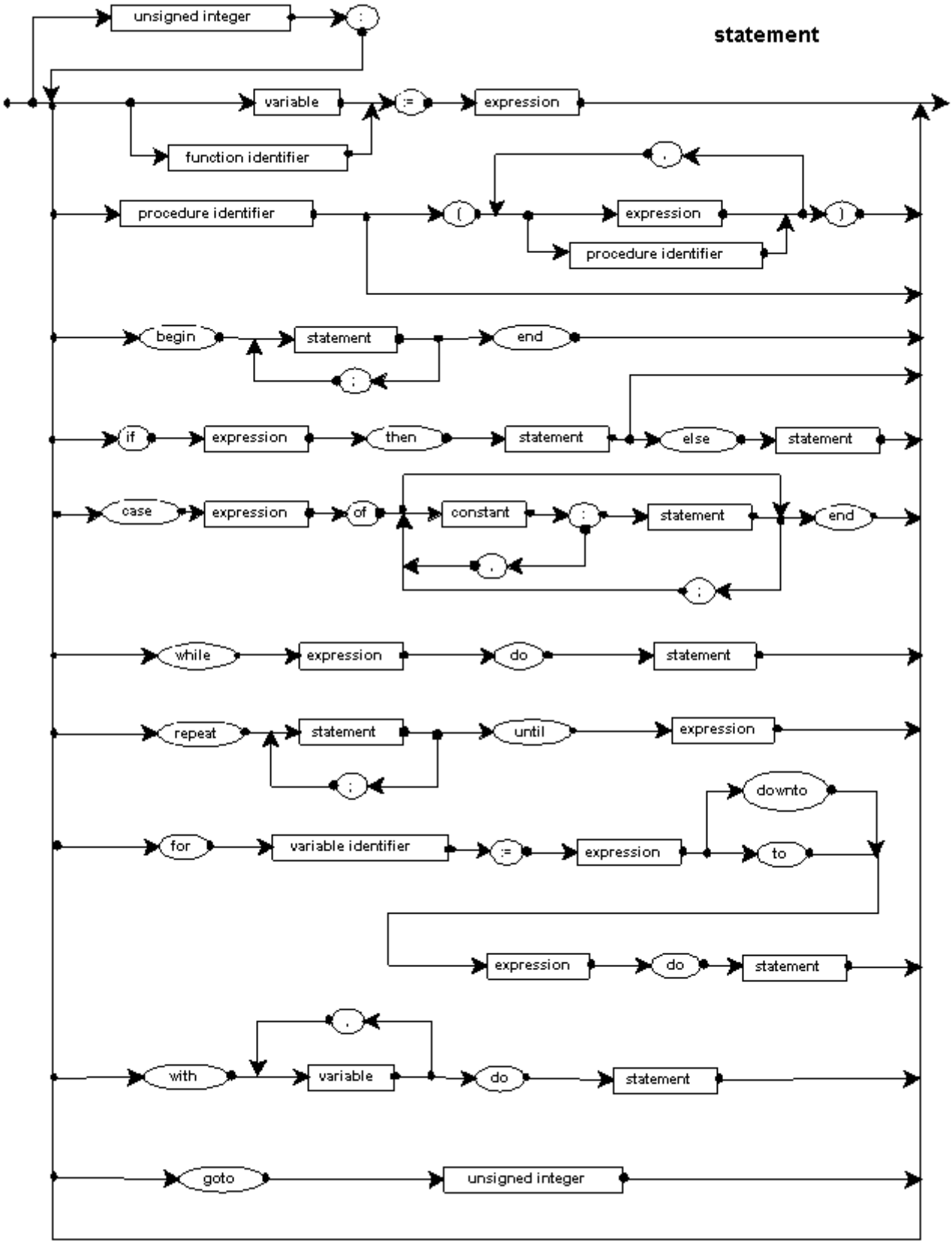
term


factor
unsigned constant
variable
function identifier
(
,
expression
)
(
expression
)
not
factor
[
]
expression
..
expression
,


parameter list
(
;
identifier
,
:
type identifier
)
function
var
procedure
,
identifier


block
label
,
unsigned integer
;
const
identifier
=
constant
;
type
identifier
=
type
;
var
identifier
,
:
type
;
;
block
;
procedure
identifier
parameter list
function
identifier
parameter list
:
type identifier
begin
statement
;
end


program
program
identifier
;
block
.


statement
unsigned integer
:
variable
:=
expression
function identifier
,
procedure identifier
(
expression
)
procedure identifier
begin
statement
end
;
if
expression
then
statement
else
statement
case
expression
of
constant
:
statement
end
,
;
while
expression
do
statement
repeat
statement
until
expression
;
for
variable identifier
:=
expression
downto
to
expression
do
statement
,
with
variable
do
statement
goto
unsigned integer