PROGRAM 🡪 BLOCK

BLOCK 🡪 **block** DEFINITIONS; **begin** COMMANDS; **end**

DEFINITIONS 🡪 DEFINITION DEFINITIONS\_EXT

DEFINITIONS\_EXT 🡪 𝞮

DEFINITIONS\_EXT 🡪 ; DEFINITION DEFINITIONS\_EXT

DEFINITION 🡪 VAR\_DEFINITION

DEFINITION 🡪 TYPE\_DEFINITION

VAR\_DEFINITION 🡪 id : VAR\_DEFINITION\_EXT

VAR\_DEFINITION\_EXT 🡪 BASIC\_TYPE

VAR\_DEFINITION\_EXT 🡪 type\_name

TYPE\_DEFINITION 🡪 **type** type\_name **is** TYPE\_INDICATOR

TYPE\_INDICATOR **🡪** BASIC\_TYPE

TYPE\_INDICATOR **🡪** ARRAY\_TYPE

TYPE\_INDICATOR **🡪** POINTER\_TYPE

BASIC\_TYPE 🡪 **integer**

BASIC\_TYPE 🡪 **real**

ARRAY\_TYPE 🡪 **array** [SIZE] **of** BASIC\_TYPE

POINTER\_TYPE 🡪 ^ VAR\_DEFINITION\_EXT

SIZE 🡪 int\_num

COMMANDS 🡪 COMMAND COMMANDS\_EXT

COMMANDS\_EXT 🡪 𝞮

COMMANDS\_EXT 🡪 ; COMMAND COMMANDS\_EXT

COMMAND 🡪 RECEIVER = EXPRESSION

COMMAND 🡪 **when** (EXPRESSION rel\_op EXPRESSION)

**do** COMMANDS;

**default** COMMANDS;

**end\_when**

COMMAND 🡪 **for** (id = EXPRESSION; id rel\_op EXPRESSION; id++)

COMMANDS;

**end\_for**

COMMAND 🡪 id = **malloc**(**size\_of**(type\_name))

COMMAND 🡪 **free**(id)

COMMAND 🡪 BLOCK

RECEIVER 🡪 id RECEIVER\_EXT

RECEIVER\_EXT 🡪 𝞮

RECEIVER\_EXT 🡪 [EXPRESSION]

RECEIVER\_EXT 🡪 ^

EXPRESSION 🡪 int\_num

EXPRESSION 🡪 real\_num

EXPRESSION 🡪 &id

EXPRESSION 🡪 **size\_of**(type\_name)

EXPRESSION 🡪 id EXPRESSION\_EXT

EXPRESSION\_EXT 🡪 𝞮

EXPRESSION\_EXT 🡪 [EXPRESSION]

EXPRESSION\_EXT 🡪 ^

EXPRESSION\_EXT 🡪 ar\_op EXPRESSION

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***Nullable*** | ***First*** | ***Follow*** |
| ***PROGRAM*** |  | {block} | {EOF} |
| ***BLOCK*** |  | {block} | {‘;’, EOF} |
| ***DEFINITIONS*** |  | {id, type} | {‘;’} |
| ***DEFINITIONS\_EXT*** | + | {𝞮, ‘;’} | {‘;’} |
| ***DEFINITION*** |  | {id, type} | {‘;’} |
| ***VAR\_DEFINITION*** |  | {id} | {‘;’} |
| ***VAR\_DEFINITION\_EXT*** |  | {integer, real, type\_name} | {‘;’} |
| ***TYPE\_DEFINITION*** |  | {type} | {‘;’} |
| ***TYPE\_INDICATOR*** |  | {integer, real, array, ‘^’} | {‘;’} |
| ***BASIC\_TYPE*** |  | {integer, real} | {‘;’} |
| ***ARRAY\_TYPE*** |  | {array} | {‘;’} |
| ***POINTER\_TYPE*** |  | {‘^’} | {‘;’} |
| ***SIZE*** |  | {int\_num} | {‘]’} |
| ***COMMANDS*** |  | {id, when, for, free, block} | {‘;’} |
| ***COMMANDS\_EXT*** | + | {𝞮, ‘;’} | {‘;’} |
| ***COMMAND*** |  | {id, when, for, free, block} | {‘;’} |
| ***RECEIVER*** |  | {id} | {‘=’} |
| ***RECEIVER\_EXT*** | + | {‘[’, ‘^’} | {‘=’} |
| ***EXPRESSION*** |  | {int\_num, real\_num, ‘&’, size\_of, id} | {rel\_op, ‘;’, ‘]’, ‘)’} |
| ***EXPRESSION\_EXT*** | + | {𝞮, ‘[’, ‘^’, ar\_op} | {rel\_op, ‘;’, ‘]’, ‘)’} |