## Initial grammar

1 *program* → **program id** ( *identifier_list* ) ; *declarations subprogram_declarations compound_statement* .
2.1 *identifier_list* → **id**
2.2 *identifier_list* → *identifier_list* , **id**
3.1 *declarations* → *declarations* **var id :** *type* ;
3.2 *declarations* → $\epsilon$
4.1 *type* → *standard_type*
4.2 *type* → **array [ num .. num ] of** *standard_type*
5.1 *standard_type* → **integer**
5.2 *standard_type* → **real**
6.1 *subprogram_declarations* → *subprogram_declarations subprogram_declaration* ;
6.2 *subprogram_declarations* → $\epsilon$
7 *subprogram_declaration* → *subprogram_head declarations subprogram_declarations compound_statement*
8 *subprogram_head* → **function id** *arguments* **:** *standard_type* ;
9.1 *arguments* → ( *parameter_list* )
9.2 *arguments* → $\epsilon$
10.1 *parameter_list* → **id :** *type*
10.2 *parameter_list* → *parameter_list* **; id :** *type*
11 *compound_statement* → **begin** *optional_statements* **end**
12.1 *optional_statements* → *statement_list*
12.2 *optional_statements* → $\epsilon$
13.1 *statement_list* → *statement*
13.2 *statement_list* → *statement_list* ; *statement*
14.1 *statement* → *variable* **assignop** *expression*
14.2 *statement* → *compound_statement*
14.3 *statement* → **if** *expression* **then** *statement*
14.4 *statement* → **if** *expression* **then** *statement* **else** *statement*
14.5 *statement* → **while** *expression* **do** *statement*
15.1 *variable* → **id**
15.2 *variable* → **id [** *expression* **]**
16.1 *expression_list* → *expression*
16.2 *expression_list* → *expression_list* , *expression*
17.1 *expression* → *simple_expression*
17.2 *expression* → *simple_expression* **relop** *simple_expression*
18.1 *simple_expression* → *term*
18.2 *simple_expression* → *sign term*
18.3 *simple_expression* → *simple_expression* **addop** *term*
19.1 *term* → *factor*
19.2 *term* → *term* **mulop** *factor*
20.1 *factor* → **id**
20.2 *factor* → **id [** *expression* **]**
20.3 *factor* → **id** ( *expression_list* )
20.4 *factor* → **num**
20.5 *factor* → ( *expression* )
20.6 *factor* → **not** *factor*
21.1 *sign* → +
21.2 *sign* → **-**