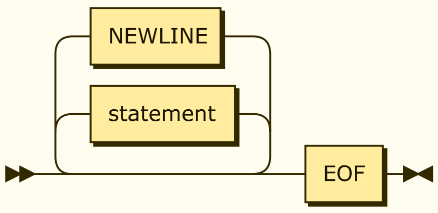
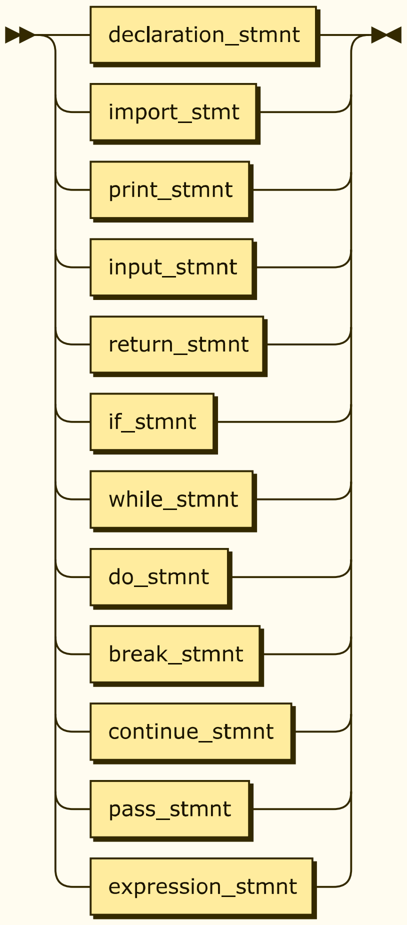
program:



```
program  ::= ( statement | NEWLINE )* EOF
```

no references

statement:

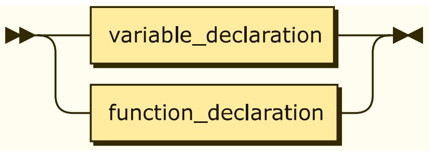


```
statement
         ::= declaration_stmnt
           | import_stmt
           | print_stmnt
           | input_stmnt
           | return_stmnt
           | if_stmnt
           | while_stmnt
           | do_stmnt
           | break_stmnt
           | continue_stmnt
           | pass_stmnt
           | expression_stmnt
```

referenced by:

- block
- program

declaration_stmnt:

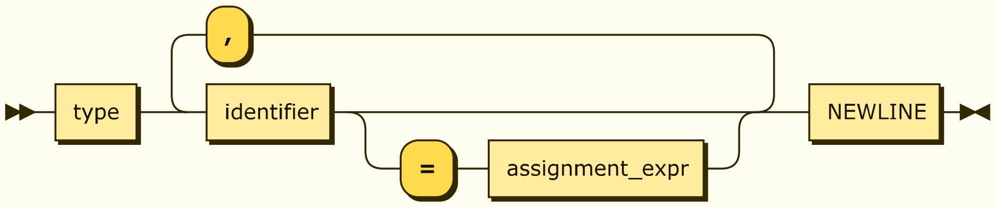


```
declaration_stmnt
         ::= variable_declaration
           | function_declaration
```

referenced by:

- statement

variable_declaration:

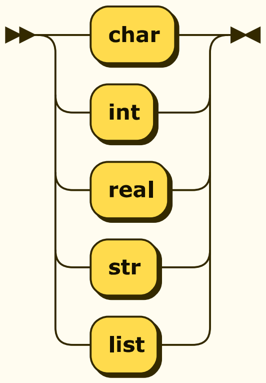


```
variable_declaration
         ::= type identifier ( '=' assignment_expr )? ( ',' identifier ( '=' assignment_expr )? )* NEWLINE
```

referenced by:

- declaration_stmnt

type:

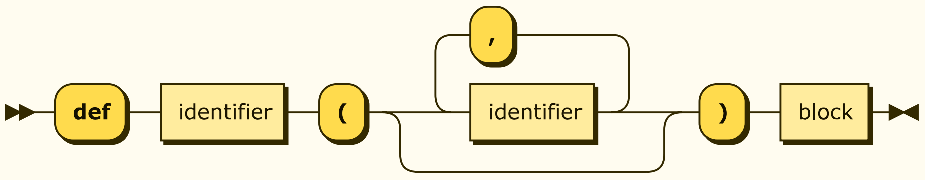


```
type     ::= 'char'
           | 'int'
           | 'real'
           | 'str'
           | 'list'
```

referenced by:

- variable_declaration

function_declaration:

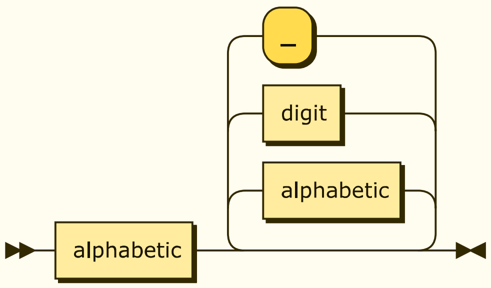


```
function_declaration
         ::= 'def' identifier '(' ( identifier ( ',' identifier )* )? ')' block
```

referenced by:

- declaration_stmnt

identifier:

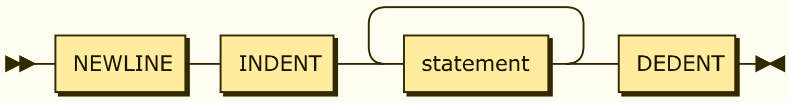


```
identifier
         ::= alphabetic ( alphabetic | digit | '_' )*
```

referenced by:

- function_call
- function_declaration
- input_stmnt
- variable_declaration

block:

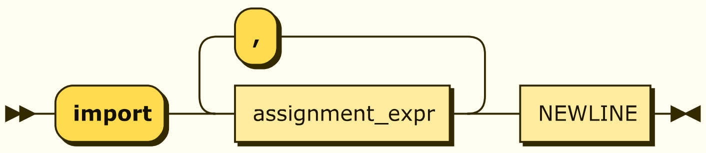


```
block    ::= NEWLINE INDENT statement+ DEDENT
```

referenced by:

- do_stmnt
- function_declaration
- if_stmnt
- while_stmnt

import_stmt:

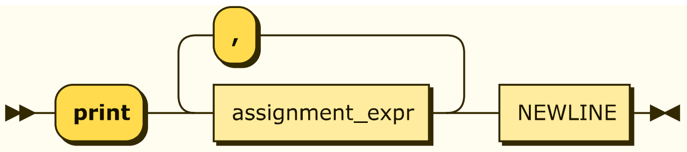


```
import_stmt
         ::= 'import' assignment_expr ( ',' assignment_expr )* NEWLINE
```

referenced by:

- statement

print_stmnt:

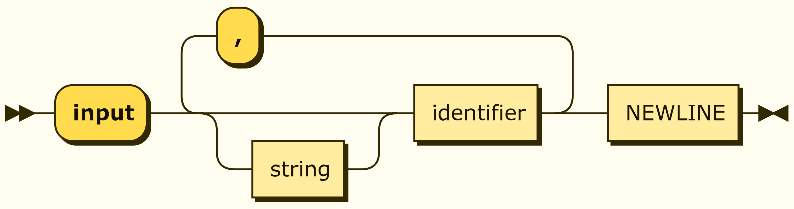


```
print_stmnt
         ::= 'print' assignment_expr ( ',' assignment_expr )* NEWLINE
```

referenced by:

- statement

input_stmnt:

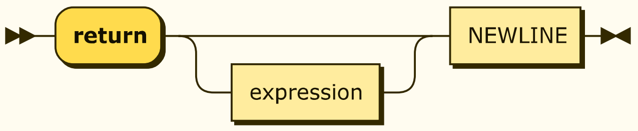


```
input_stmnt
         ::= 'input' string? identifier ( ',' string? identifier )* NEWLINE
```

referenced by:

- statement

return_stmnt:

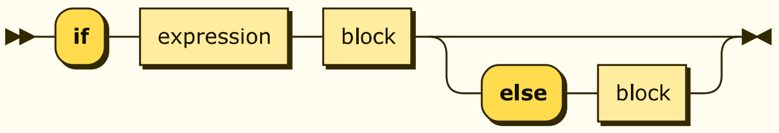


```
return_stmnt
         ::= 'return' expression? NEWLINE
```

referenced by:

- statement

if_stmnt:

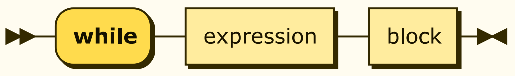


```
if_stmnt ::= 'if' expression block ( 'else' block )?
```

referenced by:

- statement

while_stmnt:

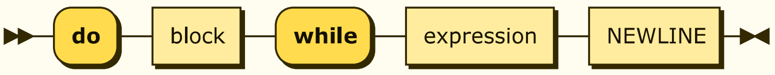


```
while_stmnt
         ::= 'while' expression block
```

referenced by:

- statement

do_stmnt:

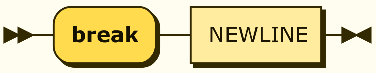


```
do_stmnt ::= 'do' block 'while' expression NEWLINE
```

referenced by:

- statement

break_stmnt:

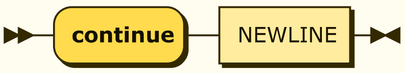


```
break_stmnt
         ::= 'break' NEWLINE
```

referenced by:

- statement

continue_stmnt:

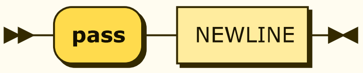


```
continue_stmnt
         ::= 'continue' NEWLINE
```

referenced by:

- statement

pass_stmnt:

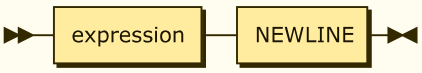


```
pass_stmnt
         ::= 'pass' NEWLINE
```

referenced by:

- statement

expression_stmnt:

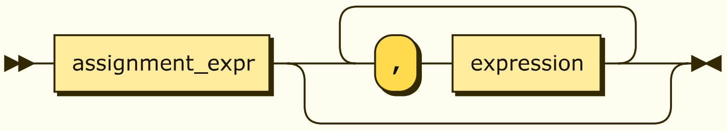


```
expression_stmnt
         ::= expression NEWLINE
```

referenced by:

- statement

expression:

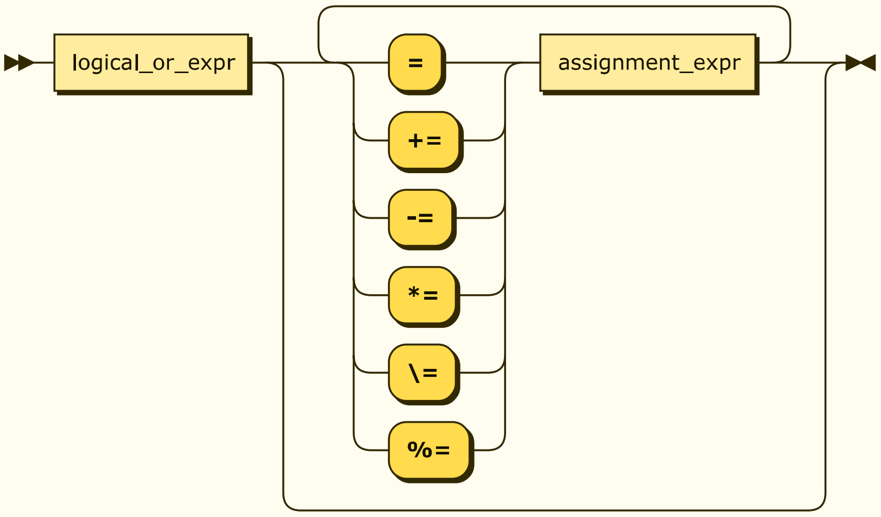


```
expression
         ::= assignment_expr ( ',' expression )*
```

referenced by:

- do_stmnt
- expression
- expression_stmnt
- if_stmnt
- primary_expr
- return_stmnt
- while_stmnt

assignment_expr:

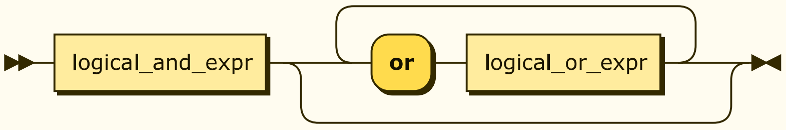


```
assignment_expr
         ::= logical_or_expr ( ( '=' | '+=' | '-=' | '*=' | '\=' | '%=' ) assignment_expr )*
```

referenced by:

- assignment_expr
- expression
- function_call
- import_stmt
- list_const
- print_stmnt
- variable_declaration

logical_or_expr:

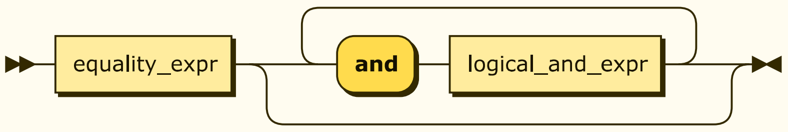


```
logical_or_expr
         ::= logical_and_expr ( 'or' logical_or_expr )*
```

referenced by:

- assignment_expr
- index
- list_append
- list_insert
- logical_or_expr
- slice

logical_and_expr:

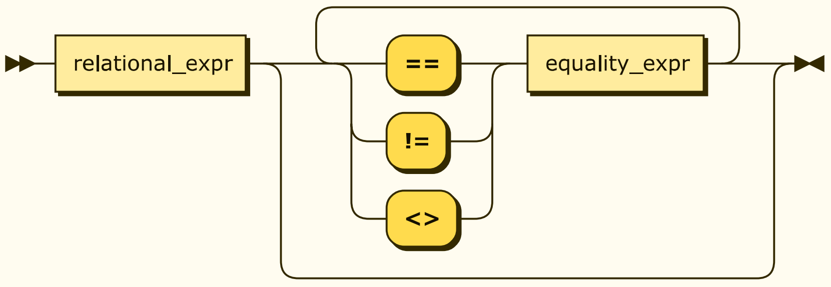


```
logical_and_expr
         ::= equality_expr ( 'and' logical_and_expr )*
```

referenced by:

- logical_and_expr
- logical_or_expr

equality_expr:

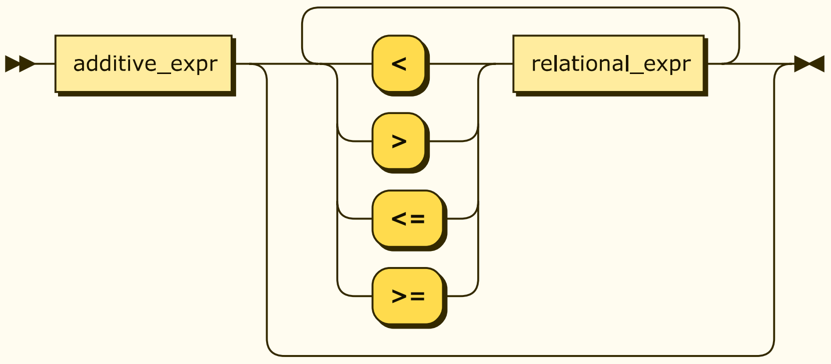


```
equality_expr
         ::= relational_expr ( ( '==' | '!=' | '<>' ) equality_expr )*
```

referenced by:

- equality_expr
- logical_and_expr

relational_expr:

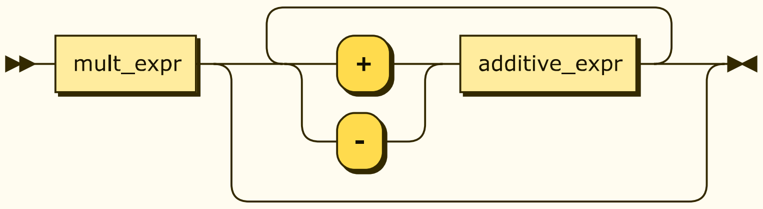


```
relational_expr
         ::= additive_expr ( ( '<' | '>' | '<=' | '>=' ) relational_expr )*
```

referenced by:

- equality_expr
- relational_expr

additive_expr:

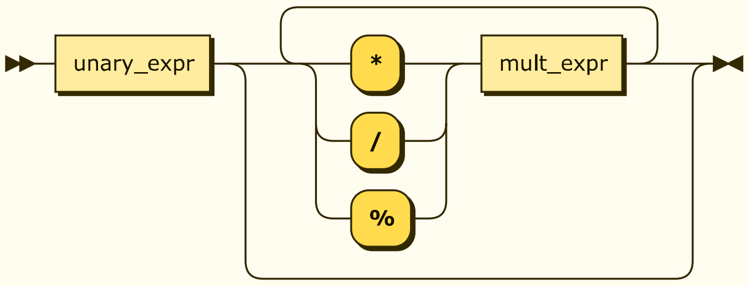


```
additive_expr
         ::= mult_expr ( ( '+' | '-' ) additive_expr )*
```

referenced by:

- additive_expr
- relational_expr

mult_expr:

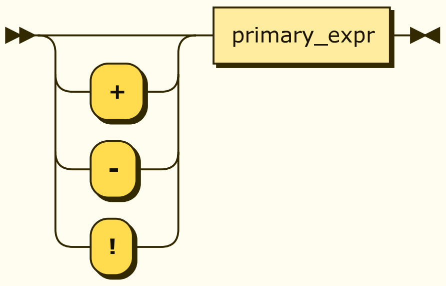


```
mult_expr
         ::= unary_expr ( ( '*' | '/' | '%' ) mult_expr )*
```

referenced by:

- additive_expr
- mult_expr

unary_expr:

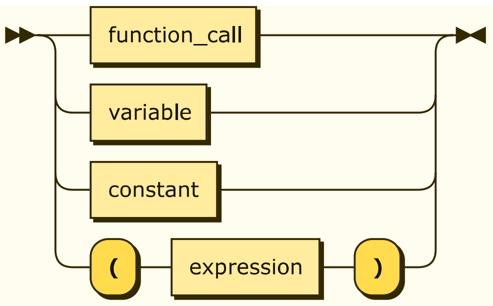


```
unary_expr
         ::= ( '+' | '-' | '!' )? primary_expr
```

referenced by:

- mult_expr

primary_expr:

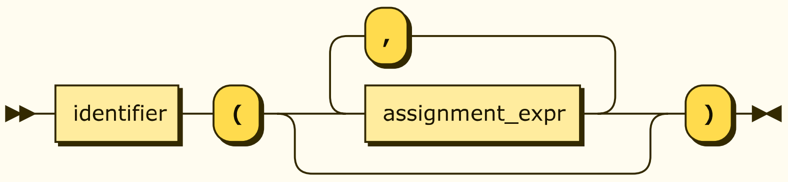


```
primary_expr
         ::= function_call
           | variable
           | constant
           | '(' expression ')'
```

referenced by:

- unary_expr

function_call:

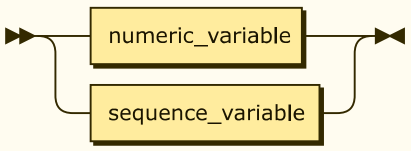


```
function_call
         ::= identifier '(' ( assignment_expr ( ',' assignment_expr )* )? ')'
```

referenced by:

- primary_expr

variable:

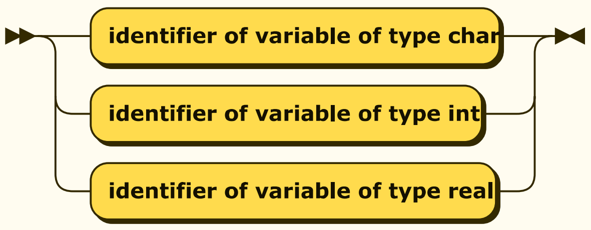


```
variable ::= numeric_variable
           | sequence_variable
```

referenced by:

- primary_expr

numeric_variable:

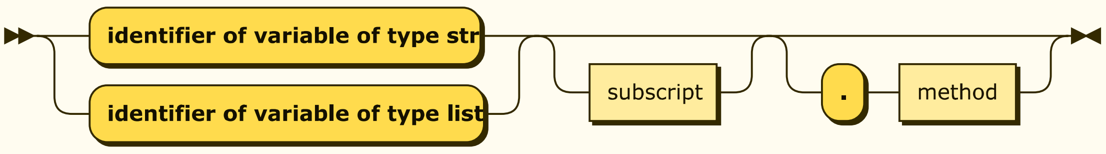

identifier of variable of type char
identifier of variable of type int
identifier of variable of type real

```
numeric_variable
         ::= 'identifier of variable of type char'
           | 'identifier of variable of type int'
           | 'identifier of variable of type real'
```

referenced by:

- variable

sequence_variable:

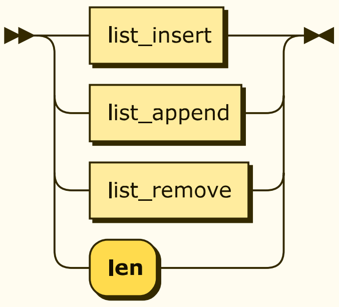

identifier of variable of type str
identifier of variable of type list
subscript
.
method

```
sequence_variable
         ::= ( 'identifier of variable of type str' | 'identifier of variable of type list' ) subscript? ( '.' method )?
```

referenced by:

- variable

method:

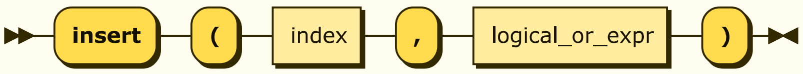


```
method   ::= list_insert
           | list_append
           | list_remove
           | 'len'
```

referenced by:

- sequence_variable

list_insert:

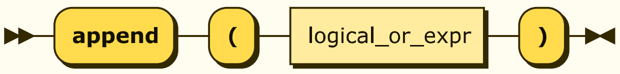


```
list_insert
         ::= 'insert' '(' index ',' logical_or_expr ')'
```

referenced by:

- method

list_append:

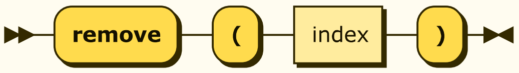


```
list_append
         ::= 'append' '(' logical_or_expr ')'
```

referenced by:

- method

list_remove:

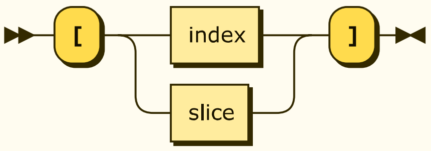


```
list_remove
         ::= 'remove' '(' index ')'
```

referenced by:

- method

subscript:

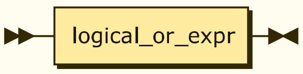


```
subscript
         ::= '[' ( index | slice ) ']'
```

referenced by:

- sequence_variable

index:

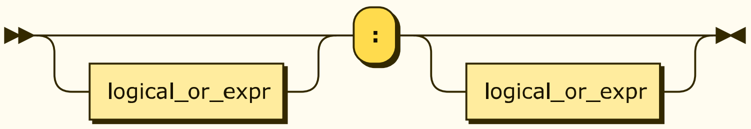


```
index    ::= logical_or_expr
```

referenced by:

- list_insert
- list_remove
- subscript

slice:

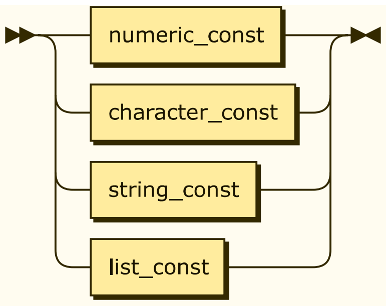


```
slice    ::= logical_or_expr? ':' logical_or_expr?
```

referenced by:

- subscript

constant:

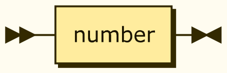


```
constant ::= numeric_const
           | character_const
           | string_const
           | list_const
```

referenced by:

- primary_expr

numeric_const:

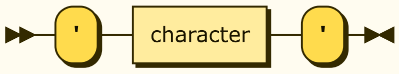


```
numeric_const
         ::= number
```

referenced by:

- constant

character_const:

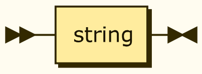


```
character_const
         ::= "'" character "'"
```

referenced by:

- constant

string_const:

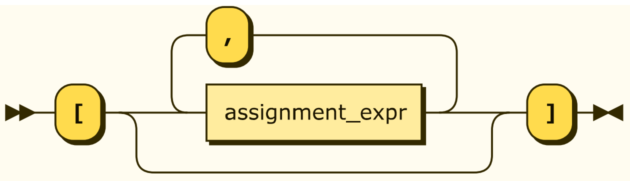


```
string_const
         ::= string
```

referenced by:

- constant

list_const:

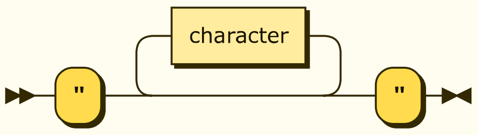


```
list_const
         ::= '[' ( assignment_expr ( ',' assignment_expr )* )? ']'
```

referenced by:

- constant

string:

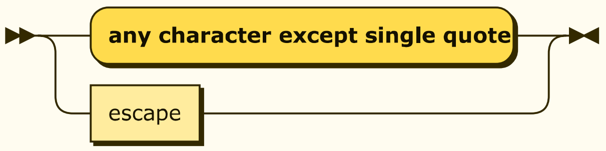


```
string   ::= '"' character* '"'
```

referenced by:

- input_stmnt
- string_const

character:

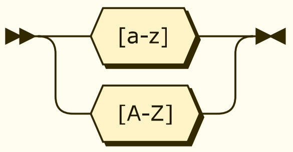


```
character
         ::= 'any character except single quote'
           | escape
```

referenced by:

- character_const
- string

alphabetic:

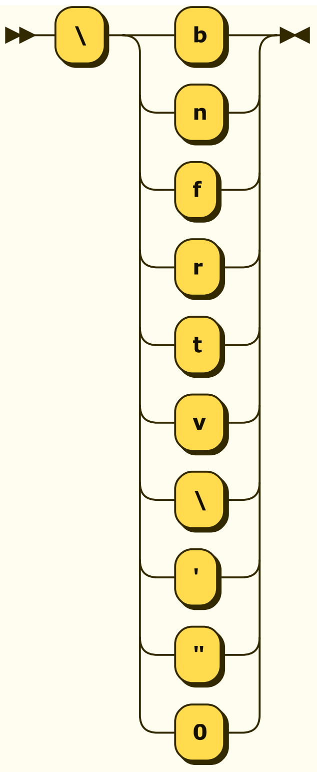


```
alphabetic
         ::= [a-zA-Z]
```

referenced by:

- identifier

escape:

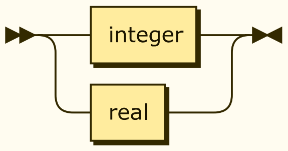


```
escape   ::= '\' [bnfrtv\'"0]
```

referenced by:

- character

number:

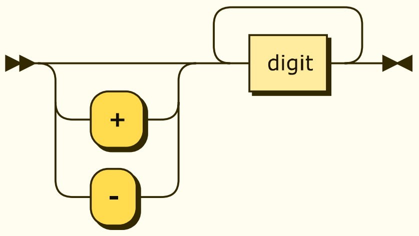


```
number   ::= integer
           | real
```

referenced by:

- numeric_const

integer:

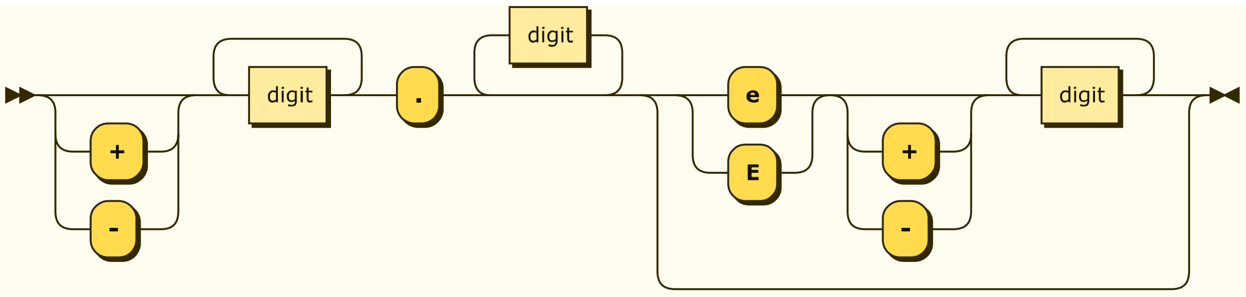


```
integer  ::= ( '+' | '-' )? digit+
```

referenced by:

- number

real:

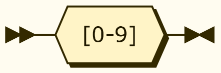


```
real     ::= ( '+' | '-' )? digit+ '.' digit* ( ( 'e' | 'E' ) ( '+' | '-' )? digit+ )?
```

referenced by:

- number

digit:



```
digit    ::= [0-9]
```

referenced by:

- identifier
- integer
- real

... generated by Railroad Diagram Generator