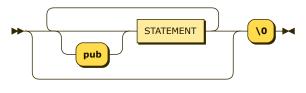
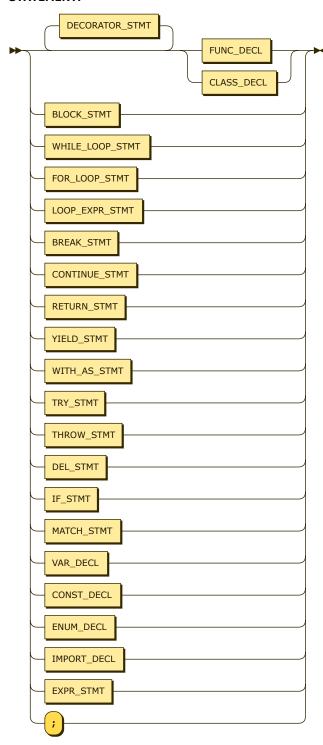
MODULE:



MODULE ::= ('pub'? STATEMENT)* '\0'

no references

STATEMENT:



STATEMENT

::= BLOCK_STMT

```
WHILE_LOOP_STMT
FOR_LOOP_STMT
LOOP_EXPR_STMT
BREAK_STMT
CONTINUE_STMT
RETURN_STMT
YIELD_STMT
WITH_AS_STMT
TRY_STMT
THROW_STMT
DEL_STMT
IF_STMT
MATCH_STMT
VAR_DECL
CONST_DECL
ENUM_DECL
IMPORT_DECL
DECORATOR_STMT* ( FUNC_DECL | CLASS_DECL )
EXPR_STMT
```

- BLOCK STMT
- MODULE

BLOCK_STMT:

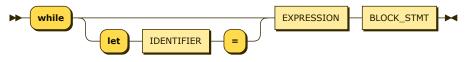


```
BLOCK_STMT
         ::= '{' STATEMENT* '}'
```

referenced by:

- CATCH PART
- FINALLY PART FOR LOOP STMT
- FUNC DECL
- IF STMT
- LAMBDA EXPR
- LOOP EXPR STMT
- MATCH ARM
- OPERATOR_OVERLOAD
- **STATEMENT**
- TRY STMT
 WHILE LOOP STMT
 WITH AS STMT

WHILE_LOOP_STMT:



```
WHILE_LOOP_STMT
     ::= 'while' ( 'let' IDENTIFIER '=' )? EXPRESSION BLOCK_STMT
```

referenced by:

• STATEMENT

FOR_LOOP_STMT:

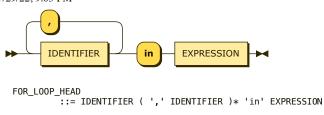


```
FOR_LOOP_STMT
        ::= 'for' FOR_LOOP_HEAD BLOCK_STMT
```

referenced by:

• STATEMENT

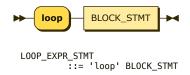
FOR_LOOP_HEAD:



referenced by:

- COMPACT FOR LOOP FOR LOOP STMT

LOOP_EXPR_STMT:



referenced by:

- LARGE EXPR STATEMENT

BREAK_STMT:

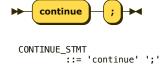


BREAK_STMT ::= 'break' EXPRESSION? ';'

referenced by:

• STATEMENT

CONTINUE_STMT:



referenced by:

• STATEMENT

RETURN_STMT:



referenced by:

• STATEMENT

YIELD_STMT:



YIELD_STMT ::= 'yield' EXPRESSION ';'

referenced by:

• STATEMENT

THROW_STMT:



referenced by:

• STATEMENT

DEL_STMT:

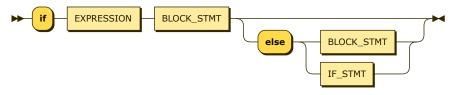


DEL_STMT ::= 'del' EXPRESSION ';'

referenced by:

• STATEMENT

IF_STMT:

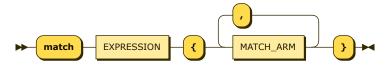


IF_STMT ::= 'if' EXPRESSION BLOCK_STMT ('else' (BLOCK_STMT | IF_STMT))?

referenced by:

- IF STMT
- STATEMENT

MATCH_STMT:

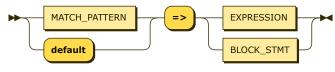


 $\label{eq:match_stmt} \begin{tabular}{ll} \tt MATCH_STMT & \tt ::= 'match' EXPRESSION '\{' MATCH_ARM (',' MATCH_ARM)* '\}' \end{tabular}$

referenced by:

• STATEMENT

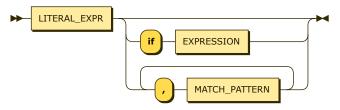
MATCH_ARM:



referenced by:

MATCH STMT

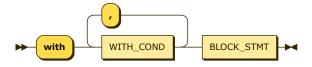
MATCH_PATTERN:



referenced by:

- MATCH ARM
- MATCH_EXPR_ARM
- MATCH_PATTERN

WITH_AS_STMT:

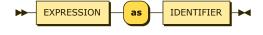


WITH_AS_STMT
 ::= 'with' WITH_COND (',' WITH_COND)* BLOCK_STMT

referenced by:

• STATEMENT

WITH_COND:



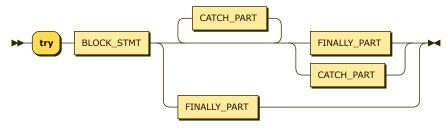
WITH_COND

::= EXPRESSION 'as' IDENTIFIER

referenced by:

• WITH AS STMT

TRY_STMT:

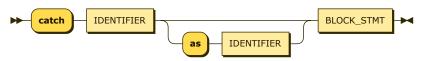


 $\label{eq:try_stmt} \textit{TRY_STMT} ::= \textit{'try'} \;\; \textit{BLOCK_STMT} \;\; (\;\; \textit{CATCH_PART*} \;\; (\;\; \textit{FINALLY_PART} \;\;) \;\; | \;\; \textit{FINALLY_PART} \;\;)$

referenced by:

• STATEMENT

CATCH_PART:

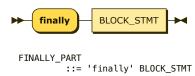


```
CATCH_PART
::= 'catch' IDENTIFIER ( 'as' IDENTIFIER )? BLOCK_STMT
```

referenced by:

• TRY STMT

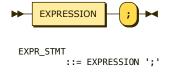
FINALLY_PART:



referenced by:

• TRY STMT

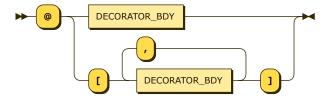
EXPR_STMT:



referenced by:

• STATEMENT

DECORATOR_STMT:



DECORATOR_STMT
::= '@' (DECORATOR_BDY | '[' DECORATOR_BDY (',' DECORATOR_BDY)* ']')

referenced by:

- CLASS MEMBER
- STATEMENT

DECORATOR_BDY:

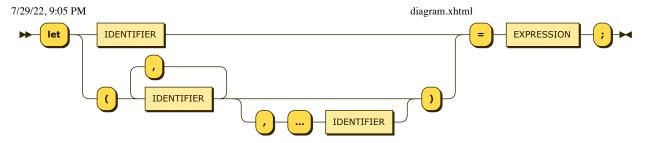


DECORATOR_BDY
::= IDENTIFIER
| CALL_EXPR

referenced by:

• DECORATOR STMT

VAR_DECL:

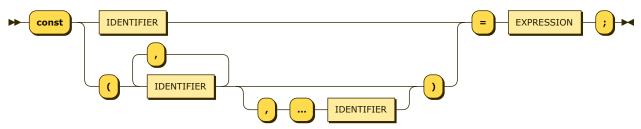


VAR_DECL ::= 'let' (IDENTIFIER | '(' IDENTIFIER (',' IDENTIFIER)* (',' '...' IDENTIFIER)? ')') '=' EXPRESSION ';'

referenced by:

- CLASS MEMBER
- STATEMENT

CONST_DECL:

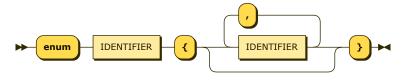


CONST_DECL ::= 'const' (IDENTIFIER | '(' IDENTIFIER (',' IDENTIFIER)* (',' '...' IDENTIFIER)? ')') '=' EXPRESSION ';'

referenced by:

- CLASS MEMBER
- STATEMENT

ENUM_DECL:

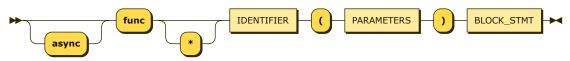


ENUM_DECL
 ::= 'enum' IDENTIFIER '{' (IDENTIFIER (',' IDENTIFIER)*)? '}'

referenced by:

• STATEMENT

FUNC_DECL:



FUNC_DECL
 ::= 'async'? 'func' '*'? IDENTIFIER '(' PARAMETERS ')' BLOCK_STMT

referenced by:

- CLASS MEMBER
- STATEMENT

PARAMETERS:



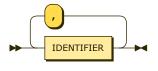
PARAMETERS

::= VAR_PARAM? DEFAULT_PARAM? REST_PARAM?

referenced by:

- FUNC DECL
- LAMBDA EXPR OPERATOR OVERLOAD

VAR_PARAM:



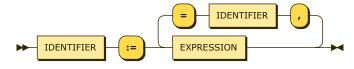
VAR_PARAM

::= IDENTIFIER (',' IDENTIFIER)*

referenced by:

• PARAMETERS

DEFAULT_PARAM:



DEFAULT_PARAM

::= IDENTIFIER ':=' EXPRESSION (',' IDENTIFIER '=' EXPRESSION)*

referenced by:

• PARAMETERS

REST_PARAM:



REST_PARAM

::= '...' IDENTIFIER

referenced by:

• PARAMETERS

CLASS_DECL:



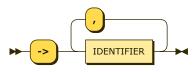
CLASS_DECL

::= 'abstract'? 'class' IDENTIFIER CLASS_EXTEND? CLASS_IMPL? CLASS_BODY

referenced by:

• STATEMENT

CLASS_EXTEND:

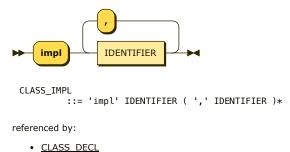


CLASS_EXTEND

referenced by:

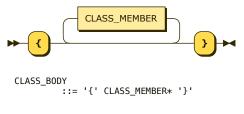
• CLASS DECL

CLASS_IMPL:



::= '->' IDENTIFIER (',' IDENTIFIER)*

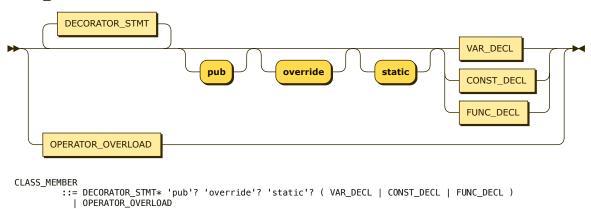
CLASS_BODY:



referenced by:

• CLASS DECL

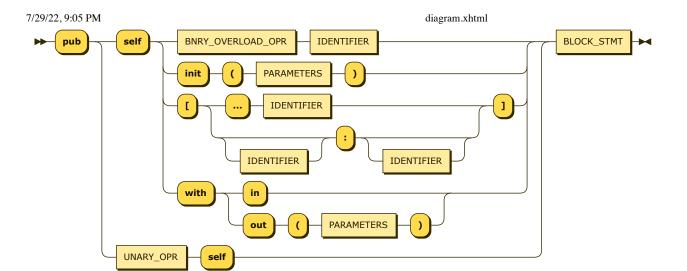
CLASS_MEMBER:



referenced by:

• CLASS BODY

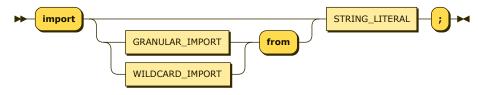
OPERATOR_OVERLOAD:



referenced by:

• CLASS MEMBER

IMPORT_DECL:

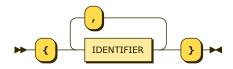


IMPORT_DECL
 ::= 'import' ((GRANULAR_IMPORT | WILDCARD_IMPORT) 'from')? STRING_LITERAL ';'

referenced by:

• STATEMENT

GRANULAR_IMPORT:



GRANULAR_IMPORT
 ::= '{' IDENTIFIER (',' IDENTIFIER)* '}'

referenced by:

• IMPORT DECL

WILDCARD_IMPORT:



WILDCARD_IMPORT
 ::= '*' 'as' IDENTIFIER

referenced by:

• IMPORT DECL

EXPRESSION:



EXPRESSION

::= REASSIGNMENT_EXPR

referenced by:

- ARR TPL LIST
 ARR TPL REPEAT
- BREAK STMT
- COMPACT ARR TPL
 COMPACT FOR LOOP
- CONST DECL DEFAULT PARAM

- DEL_STMT
- EXPR ARGUMENTS
- EXPR STMT
- FOR LOOP HEAD
- IF STMT
- **INDEXER**

- KEY VAL PAR LAMBDA EXPR LITERAL EXPR
- MATCH ARM
- MATCH EXPR
- MATCH EXPR ARM MATCH PATTERN
- MATCH_STMT
- NAMED ARGUMENTS
- REASSIGNMENT EXPR
- RETURN STMT
- SINGLE SPREAD EXPR
- **SLICE** STRING_SEQUENCE
- TERNARY_EXPR
- THROW STMT
- VAR DECL
- WHILE LOOP STMT
 WITH COND
- YIELD STMT

REASSIGNMENT_EXPR:



REASSIGNMENT_EXPR

::= TERNARY_EXPR (ASSIGNMENT_OPR EXPRESSION)?

referenced by:

• EXPRESSION

TERNARY_EXPR:



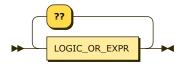
TERNARY_EXPR

::= NONE_COALESCE_EXPR ('?' EXPRESSION ':' EXPRESSION)?

referenced by:

• REASSIGNMENT EXPR

NONE_COALESCE_EXPR:



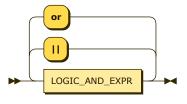
NONE_COALESCE_EXPR

::= LOGIC_OR_EXPR ('??' LOGIC_OR_EXPR)*

referenced by:

• TERNARY EXPR

LOGIC_OR_EXPR:

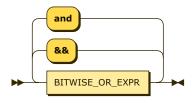


LOGIC_OR_EXPR ::= LOGIC_AND_EXPR (('||' | 'or') LOGIC_AND_EXPR)*

referenced by:

• NONE COALESCE EXPR

LOGIC_AND_EXPR:



LOGIC_AND_EXPR ::= BITWISE_OR_EXPR (('&&' | 'and') BITWISE_OR_EXPR)*

referenced by:

• LOGIC_OR_EXPR

BITWISE_OR_EXPR:



BITWISE_OR_EXPR ::= BITWISE_XOR_EXPR ('|' BITWISE_XOR_EXPR)*

referenced by:

• LOGIC AND EXPR

BITWISE_XOR_EXPR:



BITWISE_XOR_EXPR ::= BITWISE_AND_EXPR ('^' BITWISE_AND_EXPR)*

referenced by:

BITWISE OR EXPR

BITWISE_AND_EXPR:

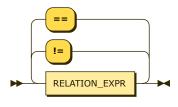


BITWISE_AND_EXPR ::= EQUALITY_EXPR ('&' EQUALITY_EXPR)*

referenced by:

• BITWISE XOR EXPR

EQUALITY_EXPR:

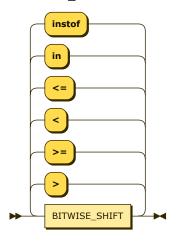


EQUALITY_EXPR
::= RELATION_EXPR (('!=' | '==') RELATION_EXPR)*

referenced by:

• BITWISE AND EXPR

RELATION_EXPR:

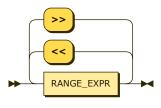


RELATION_EXPR
::= BITWISE_SHIFT (('>' | '>=' | '<' | '<=' | 'in' | 'instof') BITWISE_SHIFT)*

referenced by:

• EQUALITY_EXPR

BITWISE_SHIFT:

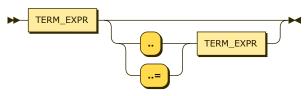


BITWISE_SHIFT ::= RANGE_EXPR (('<<' | '>>') RANGE_EXPR)*

referenced by:

• RELATION EXPR

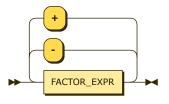
RANGE_EXPR:



referenced by:

• BITWISE_SHIFT

TERM_EXPR:

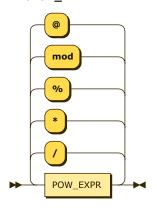


```
TERM_EXPR
::= FACTOR_EXPR ( ( '-' | '+' ) FACTOR_EXPR )*
```

referenced by:

• RANGE EXPR

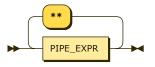
FACTOR_EXPR:



referenced by:

• TERM EXPR

POW_EXPR:

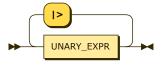


POW_EXPR ::= PIPE_EXPR ('**' PIPE_EXPR)*

referenced by:

• FACTOR EXPR

PIPE_EXPR:

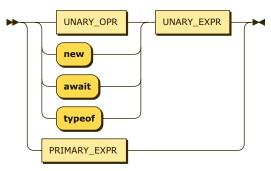


PIPE_EXPR ::= UNARY_EXPR ('|>' UNARY_EXPR)*

referenced by:

• POW EXPR

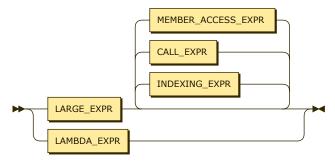
UNARY_EXPR:



referenced by:

- PIPE_EXPR
- UNARY EXPR

PRIMARY_EXPR:

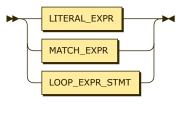


```
PRIMARY_EXPR
::= LAMBDA_EXPR
| LARGE_EXPR ( INDEXING_EXPR | CALL_EXPR | MEMBER_ACCESS_EXPR )*
```

referenced by:

• <u>UNARY_EXPR</u>

LARGE_EXPR:

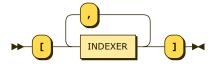


```
LARGE_EXPR
::= LITERAL_EXPR
| MATCH_EXPR
| LOOP_EXPR_STMT
```

referenced by:

• PRIMARY_EXPR

INDEXING_EXPR:

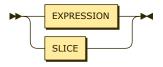


```
 \begin{array}{l} {\rm INDEXING\_EXPR} \\ {\rm ::= \ '[' \ INDEXER \ ( \ ',' \ INDEXER \ )* \ ']'} \end{array}
```

referenced by:

• PRIMARY EXPR

INDEXER:

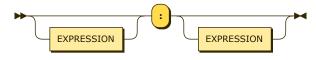


INDEXER ::= EXPRESSION | SLICE

referenced by:

• INDEXING EXPR

SLICE:



::= EXPRESSION? ':' EXPRESSION? SLICE

referenced by:

• INDEXER

CALL_EXPR:

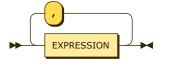


CALL_EXPR ::= '(' EXPR_ARGUMENTS? REST_ARGUMENTS? NAMED_ARGUMENTS? ')'

referenced by:

- <u>DECORATOR BDY</u> <u>PRIMARY EXPR</u>

EXPR_ARGUMENTS:



```
EXPR_ARGUMENTS
         ::= EXPRESSION ( ',' EXPRESSION )*
```

referenced by:

• CALL EXPR

REST_ARGUMENTS:

```
SINGLE_SPREAD_EXPR
```

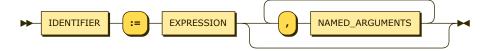
REST_ARGUMENTS

::= SINGLE_SPREAD_EXPR (',' SINGLE_SPREAD_EXPR)*

referenced by:

CALL_EXPR

NAMED_ARGUMENTS:



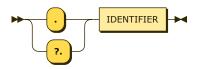
NAMED_ARGUMENTS

::= IDENTIFIER ':=' EXPRESSION (',' NAMED_ARGUMENTS)*

referenced by:

- <u>CALL EXPR</u> <u>NAMED ARGUMENTS</u>

MEMBER_ACCESS_EXPR:



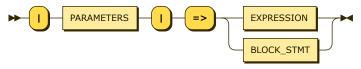
MEMBER_ACCESS_EXPR

::= ('.' | '?.') IDENTIFIER

referenced by:

• PRIMARY EXPR

LAMBDA_EXPR:



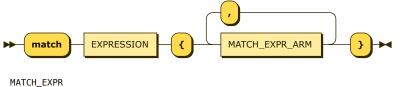
LAMBDA_EXPR

::= '|' PARAMETERS '|' '=>' (EXPRESSION | BLOCK_STMT)

referenced by:

• PRIMARY EXPR

MATCH_EXPR:

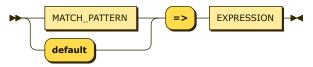


::= 'match' EXPRESSION '{' MATCH_EXPR_ARM (',' MATCH_EXPR_ARM)* '}'

referenced by:

• LARGE EXPR

MATCH_EXPR_ARM:



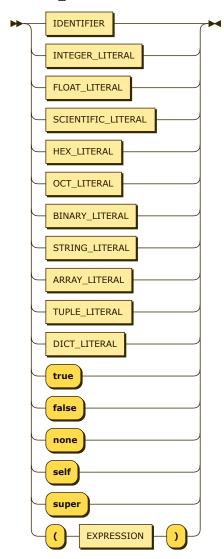
MATCH_EXPR_ARM

::= (MATCH_PATTERN | 'default') '=>' EXPRESSION

referenced by:

MATCH EXPR

LITERAL_EXPR:



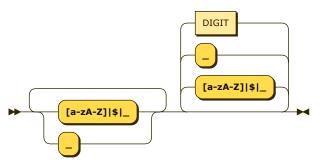
LITERAL_EXPR

::= IDENTIFIER
| INTEGER_LITERAL
| FLOAT_LITERAL
| SCIENTIFIC_LITERAL
| HEX_LITERAL
| OCT_LITERAL
| BINARY_LITERAL
| STRING_LITERAL
| ARRAY_LITERAL
| TUPLE_LITERAL
| DICT_LITERAL
| 'true'
| 'false'
| 'none'
| 'self'

```
'super'
'(' EXPRESSION ')'
```

- LARGE EXPR
- MATCH PATTERN

IDENTIFIER:



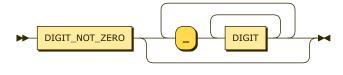
IDENTIFIER

```
::= ( '[a-zA-Z]|||_' | '_' )+ ( '[a-zA-Z]|||_' | '_' | DIGIT )*
```

referenced by:

- CATCH PART
- CLASS DECL
- CLASS EXTEND CLASS IMPL
- CONST_DECL
- **DECORATOR BDY**
- DEFAULT PARAM
- ENUM DECL
- FOR LOOP HEAD
- FUNC DECL GRANULAR IMPORT
- KEY VAL PAR
- LITERAL EXPR
- MEMBER ACCESS EXPR
- NAMED ARGUMENTS
- OPERATOR OVERLOAD
- REST_PARAM
- VAR DECL
- VAR PARAM
- WHILE LOOP STMT WILDCARD IMPORT
- WITH COND

INTEGER_LITERAL:



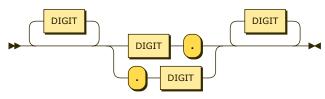
INTEGER_LITERAL

```
::= DIGIT_NOT_ZERO ( '_' DIGIT+ )*
```

referenced by:

- KEY VAL PAR
- LITERAL EXPR SCIENTIFIC LITERAL

FLOAT_LITERAL:



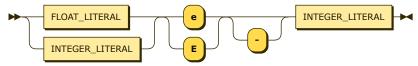
FLOAT_LITERAL

::= DIGIT* (DIGIT '.' | '.' DIGIT) DIGIT*

referenced by:

- LITERAL EXPR SCIENTIFIC LITERAL

SCIENTIFIC_LITERAL:

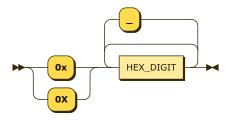


```
SCIENTIFIC_LITERAL
        ::= ( FLOAT_LITERAL | INTEGER_LITERAL ) ( 'e' | 'E' ) '-'? INTEGER_LITERAL
```

referenced by:

• LITERAL EXPR

HEX_LITERAL:

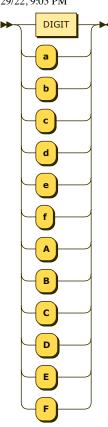


```
{\sf HEX\_LITERAL}
          ::= ( '0x' | '0X' ) HEX_DIGIT ( '_'? HEX_DIGIT )*
```

referenced by:

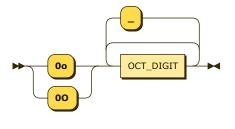
- KEY VAL PAR
- LITERAL EXPR

HEX_DIGIT:



• HEX LITERAL

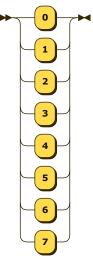
OCT_LITERAL:



referenced by:

- KEY_VAL_PAR LITERAL_EXPR

OCT_DIGIT:

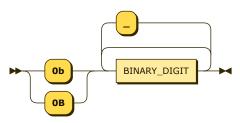


OCT_DIGIT

referenced by:

• OCT LITERAL

BINARY_LITERAL:

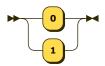


BINARY_LITERAL
::= ('0b' | '0B') BINARY_DIGIT ('_'? BINARY_DIGIT)*

referenced by:

- KEY VAL PAR LITERAL EXPR

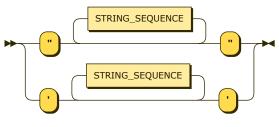
BINARY_DIGIT:



referenced by:

• BINARY_LITERAL

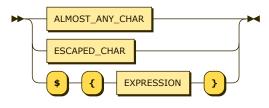
STRING_LITERAL:



```
STRING_LITERAL
::= '"' STRING_SEQUENCE* '"'
| "'" STRING_SEQUENCE* """
```

- IMPORT DECL
- KEY VAL PAR LITERAL EXPR

STRING_SEQUENCE:



```
STRING_SEQUENCE
                ::= ALMOST_ANY_CHAR
| ESCAPED_CHAR
| '$' '{' EXPRESSION '}'
```

referenced by:

• STRING LITERAL

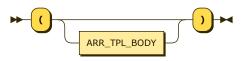
ARRAY_LITERAL:



referenced by:

• LITERAL_EXPR

TUPLE_LITERAL:



```
TUPLE_LITERAL
    ::= '(' ARR_TPL_BODY? ')'
```

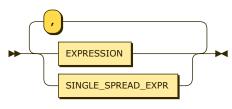
referenced by:

- KEY VAL PARLITERAL EXPR

ARR_TPL_BODY:

- ARRAY_LITERAL
- TUPLE LITERAL

ARR_TPL_LIST:

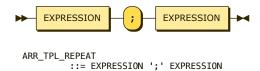


ARR_TPL_LIST ::= (EXPRESSION | SINGLE_SPREAD_EXPR) (',' (EXPRESSION | SINGLE_SPREAD_EXPR))*

referenced by:

• ARR TPL BODY

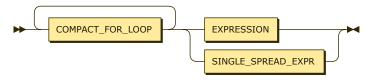
ARR_TPL_REPEAT:



referenced by:

• ARR TPL BODY

COMPACT_ARR_TPL:

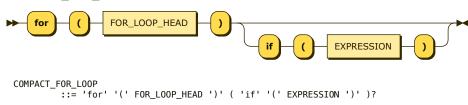


COMPACT_ARR_IPL
::= COMPACT_FOR_LOOP+ (EXPRESSION | SINGLE_SPREAD_EXPR)

referenced by:

ARR TPL BODY

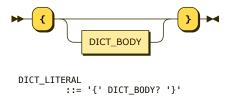
COMPACT_FOR_LOOP:



referenced by:

- COMPACT ARR TPL COMPACT DICT

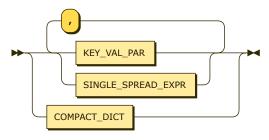
DICT_LITERAL:



referenced by:

• LITERAL EXPR

DICT_BODY:

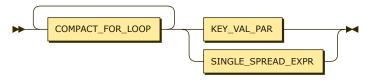


DICT_BODY ::= (KEY_VAL_PAR | SINGLE_SPREAD_EXPR) (',' (KEY_VAL_PAR | SINGLE_SPREAD_EXPR))*
| COMPACT_DICT

referenced by:

• DICT_LITERAL

COMPACT_DICT:

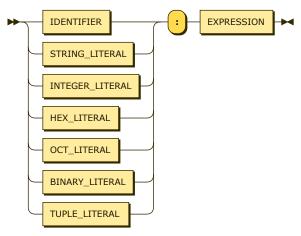


COMPACT_DICT ::= COMPACT_FOR_LOOP+ (KEY_VAL_PAR | SINGLE_SPREAD_EXPR)

referenced by:

• DICT BODY

KEY_VAL_PAR:



KEY_VAL_PAR ::= (IDENTIFIER | STRING_LITERAL | INTEGER_LITERAL | HEX_LITERAL | OCT_LITERAL | BINARY_LITERAL | TUPLE_LITERAL) ':' **EXPRESSION**

referenced by:

- COMPACT DICT
- DICT BODY

SINGLE_SPREAD_EXPR:



SINGLE_SPREAD_EXPR
::= '...' EXPRESSION

referenced by:

- ARR TPL LIST COMPACT ARR TPL COMPACT DICT

- DICT BODY REST ARGUMENTS

DIGIT:

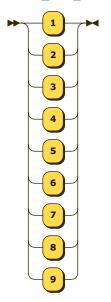


DIGIT ::= '0' | DIGIT_NOT_ZERO

referenced by:

- FLOAT LITERAL
- HEX DIGIT
- IDENTIFIER
- INTEGER LITERAL

DIGIT_NOT_ZERO:

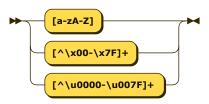


DIGIT_NOT_ZERO I_ZERO
::= '1'
| '2'
| '3'
| '4'
| '5'
| '6'
| '7'

- <u>DIGIT</u> <u>INTEGER LITERAL</u>

| '9'

ALMOST_ANY_CHAR:

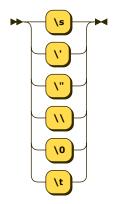


```
ALMOST_ANY_CHAR
           ::= '[a-zA-Z]'
| '[^\x00-\x7F]+'
                '[^\u0000-\u007F]+'
```

referenced by:

• STRING SEQUENCE

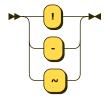
ESCAPED_CHAR:



referenced by:

• STRING SEQUENCE

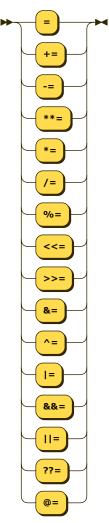
UNARY_OPR:



referenced by:

- OPERATOR OVERLOAD UNARY EXPR

ASSIGNMENT_OPR:

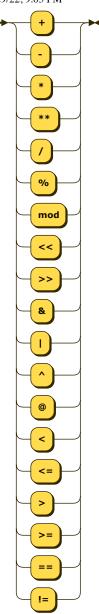


```
ASSIGNMENT_OPR
::= '='
| '+='
| '-='
| '**='
| '*='
| '%s-'
| '%s-'
| '>>='
| '>>='
| '$6='
| '] '='
| '$6='
| '] '='
| '$6='
| '] '='
| '$7?='
```

referenced by:

• REASSIGNMENT EXPR

${\bf BNRY_OVERLOAD_OPR:}$



BNRY_OVERLOAD_OPR
::= '+'
| '-'

referenced by:

• OPERATOR OVERLOAD

... generated by RR - Railroad Diagram Generator