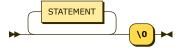
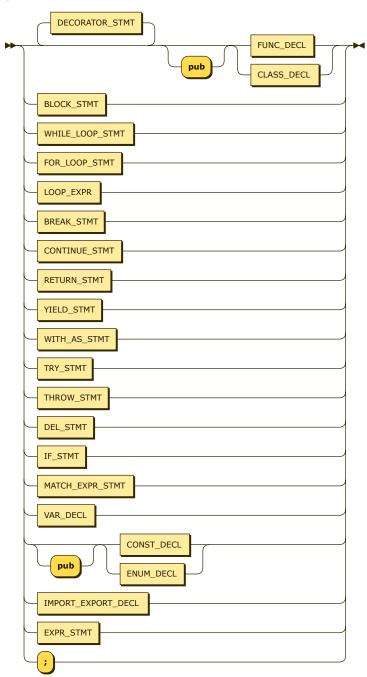
MODULE:



MODULE ::= STATEMENT* '\0'

no references

STATEMENT:



STATEMENT

::= BLOCK_STMT
| WHILE_LOOP_STMT
| FOR_LOOP_STMT
| LOOP_EXPR
| BREAK_STMT
| CONTINUE_STMT
| RETURN_STMT
| YIELD_STMT
| WITH_AS_STMT
| TRY_STMT
| THROW_STMT

```
IF_STMT
MATCH_EXPR_STMT
VAR_DECL
'pub'? ( CONST_DECL | ENUM_DECL )
IMPORT_EXPORT_DECL
DECORATOR_STMT* 'pub'? ( FUNC_DECL | CLASS_DECL )
EYPD_STMT
```

- BLOCK STMT
- MODULE

BLOCK_STMT:

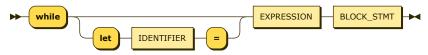


BLOCK_STMT .. ::= '{' STATEMENT* '}'

referenced by:

- CLS MEMBER
- DEFAULT ARM
- DEFAULT CATCH
- FINALLY PART
 FOR LOOP STMT
- FUNC DECL
- IF STMT
- LAMBDA EXPR
- LOOP EXPR MATCH PATT ARM NAMED CATCH
- STATEMENT
- TRY STMT
- WHILE LOOP STMT
- WITH AS STMT

WHILE_LOOP_STMT:



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

referenced by:

• STATEMENT

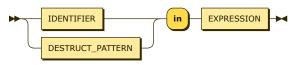
FOR_LOOP_STMT:



referenced by:

• <u>STATEMENT</u>

FOR_LOOP_HEAD:

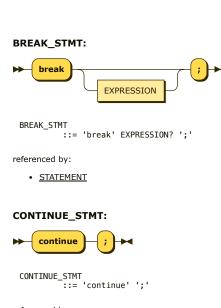


FOR_LOOP_HEAD

::= (IDENTIFIER | DESTRUCT_PATTERN) 'in' EXPRESSION

referenced by:

- COMPACT FOR LOOP FOR LOOP STMT



• STATEMENT

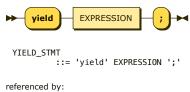
RETURN_STMT:



referenced by:

• STATEMENT

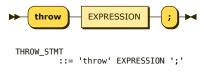
YIELD_STMT:



ciciciicca by.

• <u>STATEMENT</u>

THROW_STMT:



referenced by:

• <u>STATEMENT</u>

DEL_STMT:



referenced by:

• <u>STATEMENT</u>

IF_STMT:

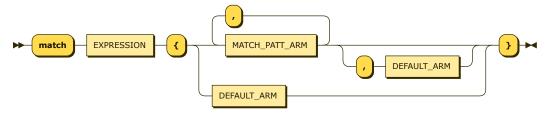
```
EXPRESSION
               BLOCK_STMT
                                  else
                                              BLOCK_STMT
                                              IF_STMT
```

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

referenced by:

- <u>IF STMT</u> <u>STATEMENT</u>

MATCH_EXPR_STMT:

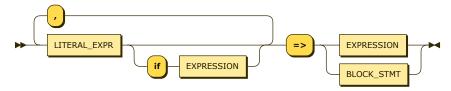


MATCH_EXPR_STMT ::= 'match' EXPRESSION '{' (MATCH_PATT_ARM (',' MATCH_PATT_ARM)* (',' DEFAULT_ARM)? | DEFAULT_ARM) '}'

referenced by:

- LARGE EXPR
- STATEMENT

MATCH_PATT_ARM:

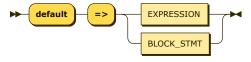


MATCH_PATT_ARM
::= LITERAL_EXPR ('if' EXPRESSION)? (',' LITERAL_EXPR ('if' EXPRESSION)?)* '=>' (EXPRESSION | BLOCK_STMT)

referenced by:

• MATCH EXPR STMT

DEFAULT_ARM:



DEFAULT_ARM ::= 'default' '=>' (EXPRESSION | BLOCK_STMT)

referenced by:

• MATCH EXPR STMT

WITH_AS_STMT:

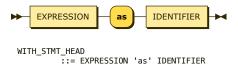


 $\label{eq:with_as_stmt} \begin{tabular}{ll} \begin{tabular}{ll}$

referenced by:

• <u>STATEMENT</u>

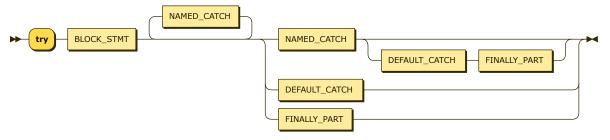
WITH_STMT_HEAD:



referenced by:

• WITH AS STMT

TRY_STMT:

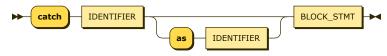


TRY_STMT ::= 'try' BLOCK_STMT NAMED_CATCH* (NAMED_CATCH (DEFAULT_CATCH FINALLY_PART)? | DEFAULT_CATCH | FINALLY_PART)

referenced by:

• STATEMENT

NAMED_CATCH:

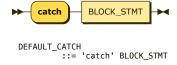


NAMED_CATCH ::= 'catch' IDENTIFIER ('as' IDENTIFIER)? BLOCK_STMT

referenced by:

• TRY STMT

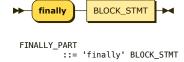
DEFAULT_CATCH:



referenced by:

• TRY STMT

FINALLY_PART:



referenced by:

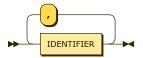
• TRY STMT

EXPR_STMT:



• STATEMENT

IDENTIFIER_LIST:

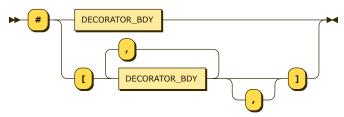


IDENTIFIER_LIST
::= IDENTIFIER (',' IDENTIFIER)*

referenced by:

- CLS EXTEND
- CLS IMPL
- DESTRUCT PATTERN
- ENUM DECL
- PARAMETERS

DECORATOR_STMT:



referenced by:

- CLS MEMBER CLS PARAM MODE
- STATEMENT

DECORATOR_BDY:



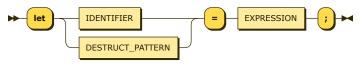
DECORATOR_BDY

::= IDENTIFIER | CALL_EXPR

referenced by:

DECORATOR STMT

VAR_DECL:

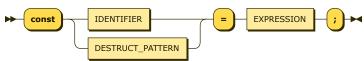


VAR_DECL ::= 'let' (IDENTIFIER | DESTRUCT_PATTERN) '=' EXPRESSION ';'

referenced by:

- CLS MEMBER STATEMENT

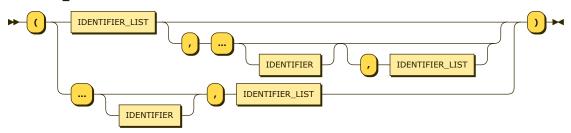
CONST_DECL:



```
CONST_DECL
          ::= 'const' ( IDENTIFIER | DESTRUCT_PATTERN ) '=' EXPRESSION ';'
referenced by:
```

• CLS MEMBER • STATEMENT

DESTRUCT_PATTERN:

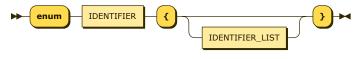


DESTRUCT_PATTERN
::= '(' (IDENTIFIER_LIST (',' '...' IDENTIFIER? (',' IDENTIFIER_LIST)?)? | '...' IDENTIFIER? ',' IDENTIFIER_LIST) ')'

referenced by:

- CONST DECL FOR LOOP HEAD VAR DECL

ENUM_DECL:



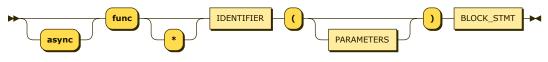
ENUM_DECL

::= 'enum' IDENTIFIER '{' IDENTIFIER_LIST? '}'

referenced by:

• STATEMENT

FUNC_DECL:



FUNC_DECL

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

referenced by:

- CLS MEMBER
- STATEMENT

PARAMETERS:

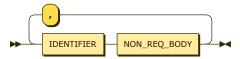


::= IDENTIFIER_LIST? NON_REQ_PARAMS? REST_PARAM?

referenced by:

- FUNC DECL
- LAMBDA EXPR

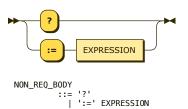
NON_REQ_PARAMS:



```
NON_REQ_PARAMS ::= IDENTIFIER NON_REQ_BODY ( ',' IDENTIFIER NON_REQ_BODY )*
```

• PARAMETERS

NON_REQ_BODY:



referenced by:

- CLS NON REQ PARAMS NON REQ PARAMS

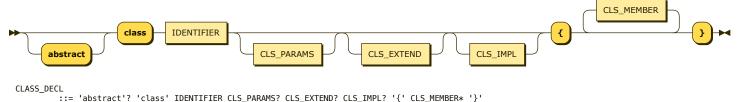
REST_PARAM:



referenced by:

- CLS PARAMS
- PARAMETERS

CLASS_DECL:



referenced by:

• STATEMENT

CLS_PARAMS:

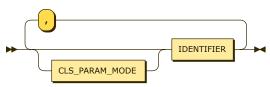


CLS_PARAMS
::= '(' CLS_PARAM_ID_LIST? CLS_NON_REQ_PARAMS? REST_PARAM? ')'

referenced by:

• CLASS DECL

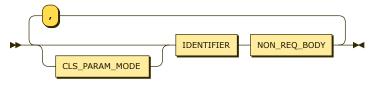
CLS_PARAM_ID_LIST:



 ${\tt CLS_PARAM_ID_LIST}$::= CLS_PARAM_MODE? IDENTIFIER (',' CLS_PARAM_MODE? IDENTIFIER)*

referenced by:

CLS_NON_REQ_PARAMS:

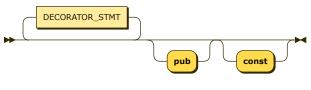


CLS_NON_REQ_PARAMS
::= CLS_PARAM_MODE? IDENTIFIER NON_REQ_BODY (',' CLS_PARAM_MODE? IDENTIFIER NON_REQ_BODY)*

referenced by:

• CLS PARAMS

CLS_PARAM_MODE:



CLS_PARAM_MODE

::= DECORATOR_STMT* 'pub'? 'const'?

referenced by:

- CLS NON REQ PARAMS
- CLS PARAM ID LIST

CLS_EXTEND:



CLS_EXTEND

::= '->' IDENTIFIER_LIST

referenced by:

• CLASS DECL

CLS_IMPL:

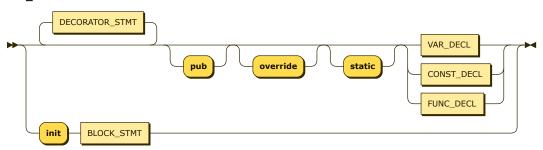


CLS_IMPL ::= 'impl' IDENTIFIER_LIST

referenced by:

CLASS DECL

CLS_MEMBER:



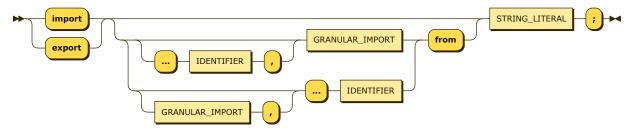
CLS_MEMBER

::= DECORATOR_STMT* 'pub'? 'override'? 'static'? (VAR_DECL | CONST_DECL | FUNC_DECL) | 'init' BLOCK_STMT

referenced by:

• CLASS DECL

IMPORT_EXPORT_DECL:

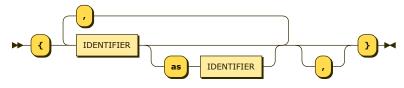


IMPORT_EXPORT_DECL ::= ('import' | 'export') ((('...' IDENTIFIER ',')? GRANULAR_IMPORT | (GRANULAR_IMPORT ',')? '...' IDENTIFIER) 'from')? STRING_LITER/

referenced by:

• STATEMENT

GRANULAR_IMPORT:



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

referenced by:

IMPORT EXPORT DECL

EXPRESSION:



EXPRESSION

::= REASSIGNMENT_EXPR

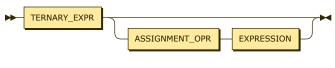
referenced by:

- ARR TPL LIST ARR TPL REPEAT BREAK STMT
- CALL EXPR
- COMPACT ARR TPL
- COMPACT FOR LOOP
 CONST DECL
 DEFAULT ARM
 DEL STMT
 EXPR STMT

- FOR LOOP HEAD

- IF STMT INDEXER KEY VAL PAR LAMBDA EXPR
- LITERAL EXPR
- MATCH EXPR STMT
- MATCH PATT ARM
- NAMED ARGS
- NON REQ BODY
- REASSIGNMENT EXPR
- RETURN STMT SINGLE SPREAD EXPR
- SLICE
- STRING SEQUENCE TERNARY EXPR
- THROW STMT
- VAR DECL
- WHILE LOOP STMT
- WITH STMT HEAD
- YIELD STMT

REASSIGNMENT_EXPR:



 $\begin{tabular}{ll} REASSIGNMENT_EXPR \\ ::= TERNARY_EXPR & (ASSIGNMENT_OPR EXPRESSION)? \\ \end{tabular}$

referenced by:

• EXPRESSION

TERNARY_EXPR:

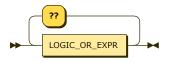


 $\begin{array}{lll} {\sf TERNARY_EXPR} \\ & ::= {\sf NONE_COALESCE_EXPR} & (& '?' & {\sf EXPRESSION} & ':' & {\sf EXPRESSION} &)? \end{array}$

referenced by:

• REASSIGNMENT EXPR

NONE_COALESCE_EXPR:

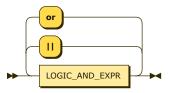


NONE_COALESCE_EXPR ::= LOGIC_OR_EXPR ('??' LOGIC_OR_EXPR)*

referenced by:

TERNARY EXPR

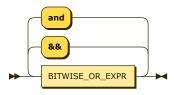
LOGIC_OR_EXPR:



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_XOR_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:

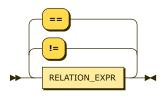


BITWISE_AND_EXPR ::= EQUALITY_EXPR ('&' EQUALITY_EXPR)*

referenced by:

• BITWISE XOR EXPR

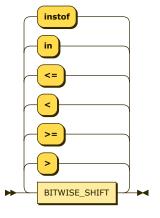
EQUALITY_EXPR:



referenced by:

BITWISE AND EXPR

RELATION_EXPR:

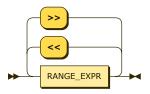


RELATION_EXPR

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

• EQUALITY EXPR

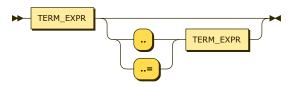
BITWISE_SHIFT:



referenced by:

RELATION EXPR

RANGE_EXPR:

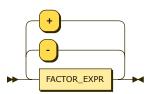


RANGE_EXPR ::= TERM_EXPR (('...' | '..=') TERM_EXPR)?

referenced by:

• BITWISE SHIFT

TERM_EXPR:

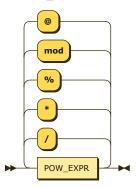


TERM_EXPR
::= FACTOR_EXPR (('-' | '+') FACTOR_EXPR)*

referenced by:

• RANGE EXPR

FACTOR_EXPR:

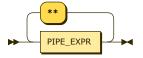


FACTOR_EXPR ::= POW_EXPR (('/' | '*' | '%' | 'mod' | '@') POW_EXPR)*

referenced by:

TERM EXPR

POW_EXPR:



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

referenced by:

• FACTOR EXPR

PIPE_EXPR:

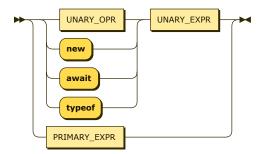


PIPE_EXPR ::= UNARY_EXPR ('|>' UNARY_EXPR)*

referenced by:

• POW EXPR

UNARY_EXPR:



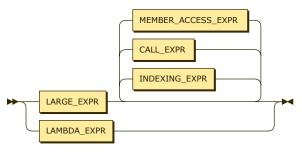
UNARY_EXPR

::= (UNARY_OPR | 'new' | 'await' | 'typeof') UNARY_EXPR | PRIMARY_EXPR

referenced by:

- <u>PIPE EXPR</u> <u>UNARY EXPR</u>

PRIMARY_EXPR:

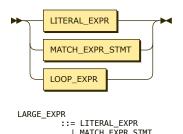


PRIMARY_EXPR
::= LAMBDA_EXPR
| LARGE_EXPR (INDEXING_EXPR | CALL_EXPR | MEMBER_ACCESS_EXPR)*

referenced by:

• UNARY EXPR

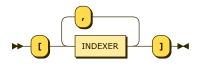
LARGE_EXPR:



| MATCH_EXPR_STMT | LOOP_EXPR

referenced by: • PRIMARY EXPR

INDEXING_EXPR:

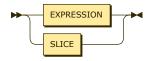


 $\begin{array}{l} {\rm INDEXING_EXPR} \\ {\rm ::= '[' \ INDEXER \ (\ ',' \ INDEXER \)* \ ']'} \end{array}$

referenced by:

• PRIMARY EXPR

INDEXER:

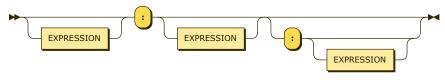


INDEXER ::= EXPRESSION | SLICE

referenced by:

INDEXING EXPR

SLICE:

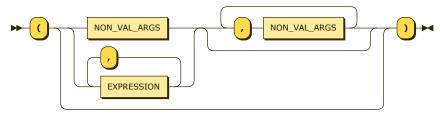


SLICE ::= EXPRESSION? ':' EXPRESSION? (':' EXPRESSION?)?

referenced by:

• INDEXER

CALL_EXPR:

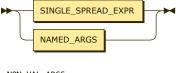


CALL_EXPR ::= '(' ((NON_VAL_ARGS | EXPRESSION (',' EXPRESSION)*) (',' NON_VAL_ARGS)*)? ')'

referenced by:

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

NON_VAL_ARGS:

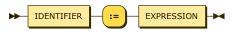


NON_VAL_ARGS ::= SINGLE_SPREAD_EXPR | NAMED_ARGS

referenced by:

CALL EXPR

NAMED_ARGS:



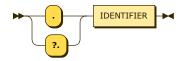
NAMED_ARGS

::= IDENTIFIER ':=' EXPRESSION

referenced by:

• NON VAL ARGS

MEMBER_ACCESS_EXPR:

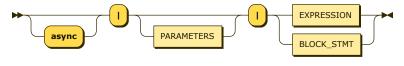


MEMBER_ACCESS_EXPR ::= ('.' | '?.') IDENTIFIER

referenced by:

PRIMARY EXPR

LAMBDA_EXPR:



LAMBDA_EXPR

::= 'async'? '|' PARAMETERS? '|' (EXPRESSION | BLOCK_STMT)

referenced by:

PRIMARY EXPR

LOOP_EXPR:



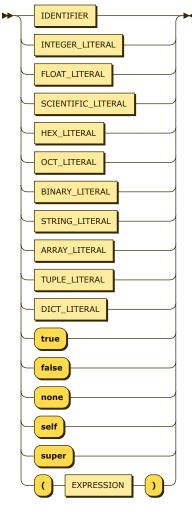
L00P_EXPR

::= 'loop' ('as' IDENTIFIER)? BLOCK_STMT

referenced by:

- LARGE EXPR
- <u>STATEMENT</u>

LITERAL_EXPR:



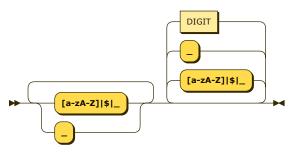
LITERAL_EXPR

::= IDENTIFIER
| INTEGER_LITERAL
| FLOAT_LITERAL
| SCIENTIFIC_LITERAL
| OCT_LITERAL
| BINARY_LITERAL
| STRING_LITERAL
| ARRAY_LITERAL
| TUPLE_LITERAL
| DICT_LITERAL
| 'true'
| 'false'
| 'none'
| 'self'
| 'super'
| '(' EXPRESSION ')'

referenced by:

- LARGE EXPR MATCH PATT ARM

IDENTIFIER:

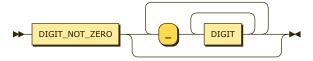


IDENTIFIER ::= ('[a-zA-Z]|\$|_' | '_')+ ('[a-zA-Z]|\$|_' | '_' | DIGIT)*

referenced by:

- CLASS DECL
- CLS NON REQ PARAMS
- CLS PARAM ID LIST
- CONST DECL
- DECORATOR BDY
- DESTRUCT PATTERN
- ENUM DECL
- FOR LOOP HEAD
- FUNC DECL
- GRANULAR IMPORT
- IDENTIFIER LIST
 IMPORT EXPORT DECL
- KEY VAL PAR
- LITERAL EXPR
- LOOP EXPR
- MEMBER ACCESS EXPR
- NAMED ARGS
- NAMED CATCHNON REQ PARAMS
- REST PARAM
- VAR DECL
- WHILE LOOP STMT
- WITH STMT HEAD

INTEGER_LITERAL:

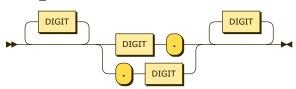


INTEGER_LITERAL
 ::= DIGIT_NOT_ZER0 ('_' DIGIT+)*

referenced by:

- KEY VAL PARLITERAL EXPRSCIENTIFIC LITERAL

FLOAT_LITERAL:



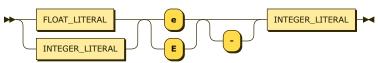
FLOAT_LITERAL

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

referenced by:

- <u>LITERAL EXPR</u> <u>SCIENTIFIC LITERAL</u>

SCIENTIFIC_LITERAL:



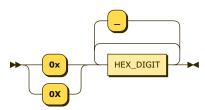
SCIENTIFIC_LITERAL

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

referenced by:

• LITERAL EXPR

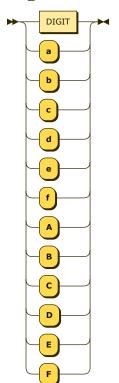
HEX_LITERAL:



```
HEX_LITERAL ::= ( '0x' | '0X' ) HEX_DIGIT ( '_'? HEX_DIGIT )*
```

- KEY VAL PAR LITERAL EXPR

HEX_DIGIT:

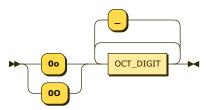


HEX_DIGIT

referenced by:

• HEX LITERAL

OCT_LITERAL:

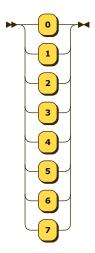


OCT_LITERAL ::= ('00' | '00') OCT_DIGIT ('_'? OCT_DIGIT)*

referenced by:

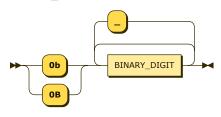
- KEY VAL PAR LITERAL EXPR

OCT_DIGIT:



• OCT LITERAL

BINARY_LITERAL:



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

referenced by:

- KEY VAL PAR LITERAL EXPR

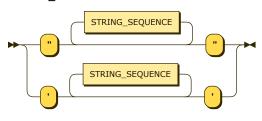
BINARY_DIGIT:



referenced by:

• BINARY LITERAL

STRING_LITERAL:

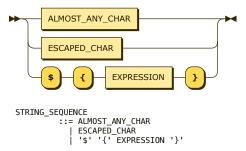


STRING_LITERAL
::= '"' STRING_SEQUENCE* '"'

```
| "'" STRING_SEQUENCE* "'"
```

- IMPORT EXPORT DECL
- KEY VAL PAR
- LITERAL EXPR

STRING_SEQUENCE:



referenced by:

• STRING LITERAL

ARRAY_LITERAL:

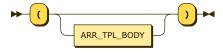


ARRAY_LITERAL
::= '[' ARR_TPL_BODY? ']'

referenced by:

• LITERAL EXPR

TUPLE_LITERAL:

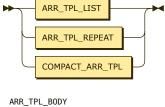


TUPLE_LITERAL
 ::= '(' ARR_TPL_BODY? ')'

referenced by:

- KEY VAL PAR LITERAL EXPR

ARR_TPL_BODY:

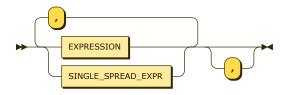


SUDY
::= ARR_TPL_LIST
| ARR_TPL_REPEAT
| COMPACT_ARR_TPL

referenced by:

- ARRAY LITERAL
 TUPLE LITERAL

ARR_TPL_LIST:

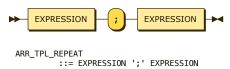


ARR_TPL_LIST ::= (EXPRESSION | SINGLE_SPREAD_EXPR) (',' (EXPRESSION | SINGLE_SPREAD_EXPR))* ','?

referenced by:

ARR TPL BODY

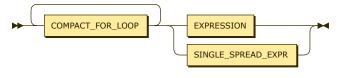
ARR_TPL_REPEAT:



referenced by:

ARR TPL BODY

COMPACT_ARR_TPL:

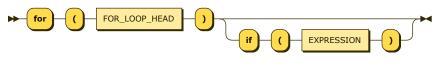


COMPACT_ARR_TPL ::= COMPACT_FOR_LOOP+ (EXPRESSION | SINGLE_SPREAD_EXPR)

referenced by:

• ARR TPL BODY

COMPACT_FOR_LOOP:



COMPACT_FOR_LOOP ::= 'for' '(' FOR_LOOP_HEAD ')' ('if' '(' EXPRESSION ')')?

referenced by:

- COMPACT ARR TPL COMPACT DICT

DICT_LITERAL:

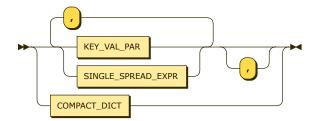


DICT_LITERAL ::= '{' DICT_BODY? '}'

referenced by:

LITERAL EXPR

DICT_BODY:



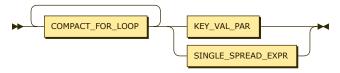
DICT_BODY

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

referenced by:

• DICT LITERAL

COMPACT_DICT:

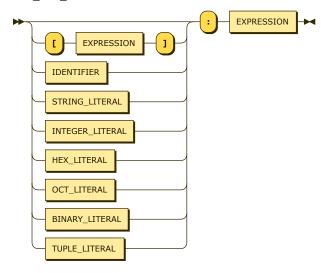


 $\label{eq:compact_dict} \text{COMPACT_DICT} \quad ::= \quad \text{COMPACT_FOR_LOOP+} \quad \text{(} \quad \text{KEY_VAL_PAR} \quad \text{|} \quad \text{SINGLE_SPREAD_EXPR} \quad \text{)}$

referenced by:

• DICT BODY

KEY_VAL_PAR:



 ${\sf KEY_VAL_PAR}$::= ('[' EXPRESSION ']' | IDENTIFIER | STRING_LITERAL | INTEGER_LITERAL | HEX_LITERAL | OCT_LITERAL | BINARY_LITERAL | TUPLE_LITERAL)? ':' E>

referenced by:

- COMPACT DICT
- DICT BODY

SINGLE_SPREAD_EXPR:



SINGLE_SPREAD_EXPR
::= '...' EXPRESSION

referenced by:

- ARR TPL LIST
 COMPACT ARR TPL
 COMPACT DICT

- NON VAL ARGS

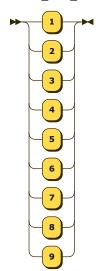
DIGIT:



referenced by:

- FLOAT LITERAL
- HEX DIGIT
- IDENTIFIER
- INTEGER LITERAL

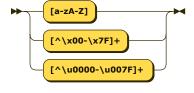
DIGIT_NOT_ZERO:



referenced by:

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

ALMOST_ANY_CHAR:

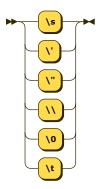


```
ALMOST_ANY_CHAR
::= '[a-zA-Z]'
| '[^\x00-\x7F]+'
| '[^\u0000-\u007F]+'
```

referenced by:

• STRING SEQUENCE

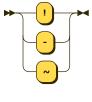
ESCAPED_CHAR:





• STRING SEQUENCE

UNARY_OPR:

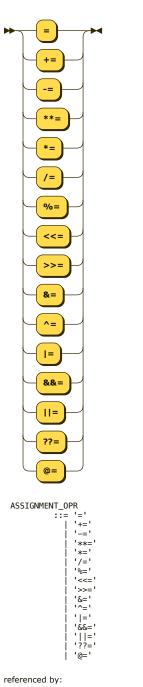


UNARY_OPR
::= '!'
| '-'
| '~'

referenced by:

• <u>UNARY EXPR</u>

ASSIGNMENT_OPR:



• REASSIGNMENT EXPR