

# **Synopsis Reference Manual**

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Version 0.13

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# **Chapter 1. Concepts**

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# Chapter 2. C++ API Reference

Abstract explaining the C++ API reference.

## The C++ API

### Namespaces

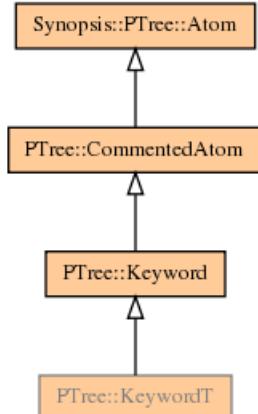
- PTree
  - SymbolLookup
  - TypeAnalysis

### Namespace PTree

#### Namespaces

- PTree::Kwd

#### class KeywordT



#### KeywordT(const Token&)

```
KeywordT(const Token& tk);
```

#### KeywordT(const char\*,size\_t)

```
KeywordT(const char* ptr, size_t length);
```

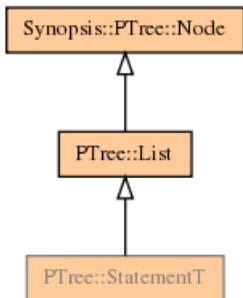
#### token()const

```
Token::Type token();
```

#### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class StatementT



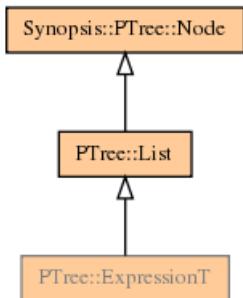
### StatementT(Node\*,Node\*)

```
StatementT(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class ExpressionT



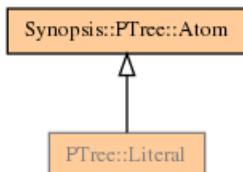
### ExpressionT(Node\*,Node\*)

```
ExpressionT(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class Literal



### Literal(const Token&)

```
Literal(const Token& tk);
```

**accept(Visitor\*)**

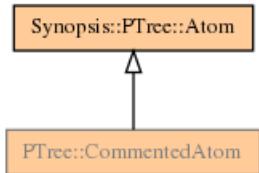
```
void accept(PTree::Visitor* visitor);
```

**type()const**

```
Token::Type type();
```

**my\_type**

```
Token::Type my_type;
```

**class CommentedAtom****CommentedAtom(const Token&,Node\*)**

```
CommentedAtom(const Token& tk, PTree::Node* c = 0);
```

**CommentedAtom(const char\*,size\_t,Node\*)**

```
CommentedAtom(const char* p, size_t l, PTree::Node* c = 0);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**get\_comments()**

```
PTree::Node * get_comments();
```

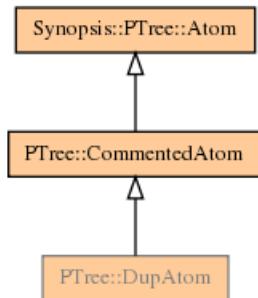
**set\_comments(Node\*)**

```
void set_comments(PTree::Node* c);
```

**my\_comments**

```
PTree::Node * my_comments;
```

## class DupAtom



**DupAtom(const char\*,size\_t)**

```
DupAtom(const char*, size_t);
```

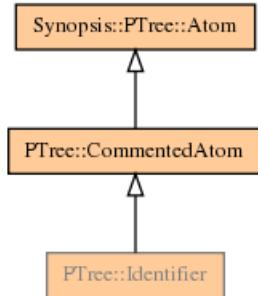
**DupAtom(const char\*,size\_t,const char\*,size\_t)**

```
DupAtom(const char*, size_t, const char*, size_t);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class Identifier



**Identifier(const Token&)**

```
Identifier(const Token& t);
```

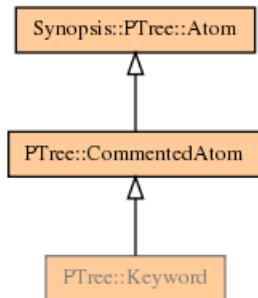
**Identifier(const char\*,size\_t)**

```
Identifier(const char* p, size_t l);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class Keyword



### Keyword(const Token&)

```
Keyword(const Token& t);
```

### Keyword(const char\*,int)

```
Keyword(const char* str, int len);
```

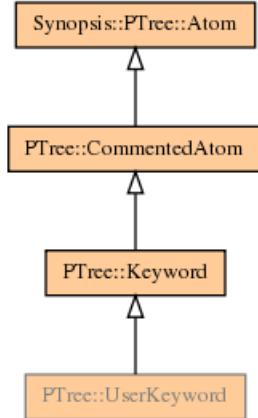
### token()const

```
Token::Type token();
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class UserKeyword



### UserKeyword(const Token&)

```
UserKeyword(const Token& t);
```

### token()const

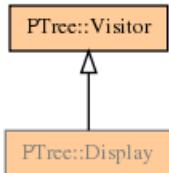
```
Token::Type token();
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**my\_type**

```
Token::Type my_type;
```

**class Display**

The Display class provides an annotated view of the ptree, for debugging purposes

**Display(std::ostream&,bool)**

```
Display(std::ostream& os, bool encoded);
```

**display(const Node\*)**

```
void display(const PTree::Node* );
```

**visit(Atom\*)**

```
void visit(PTree::Atom* );
```

**visit(List\*)**

```
void visit(PTree::List* );
```

**visit(DupAtom\*)**

```
void visit(PTree::DupAtom* );
```

**visit(Brace\*)**

```
void visit(PTree::Brace* );
```

**visit(Block\*)**

```
void visit(PTree::Block* b);
```

**visit(ClassBody\*)**

```
void visit(PTree::ClassBody* b);
```

**visit(Declarator\*)**

```
void visit(PTree::Declarator* l);
```

**visit(Name\*)**

```
void visit(PTree::Name* l);
```

**visit(FstyleCastExpr\*)**

```
void visit(PTree::FstyleCastExpr* l);
```

**newline()**

```
void newline();
```

**too\_deep()**

```
bool too_deep();
```

**print\_encoded(List\*)**

```
void print_encoded(PTree::List*);
```

**my\_os**

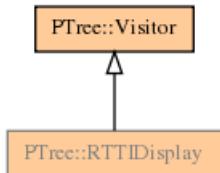
```
std::ostream & my_os;
```

**my\_indent**

```
size_t my_indent;
```

**my\_encoded**

```
bool my_encoded;
```

**class RTTIDisplay****RTTIDisplay(std::ostream&,bool)**

```
RTTIDisplay(std::ostream& os, bool encoded);
```

**display(const Node\*)**

```
void display(const PTree::Node*);
```

**visit(Atom\*)**

```
void visit(PTree::Atom*);
```

**visit(List\*)**

```
void visit(PTree::List*);
```

**visit(DupAtom\*)**

```
void visit(PTree::DupAtom*);
```

**newline()**

```
void newline();
```

**my\_os**

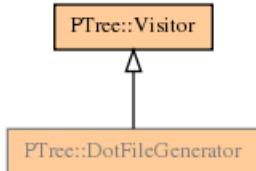
```
std::ostream & my_os;
```

**my\_indent**

```
size_t my_indent;
```

**my\_encoded**

```
bool my_encoded;
```

**class DotFileGenerator****DotFileGenerator(std::ostream&)**

```
DotFileGenerator(std::ostream&);
```

**write(const Node\*)**

```
void write(const PTree::Node* ptree);
```

**visit(Atom\*)**

```
void visit(PTree::Atom* a);
```

**visit(List\*)**

```
void visit(PTree::List* l);
```

**my\_os**

```
std::ostream & my_os;
```

## class Encoding

An Encoding represents a mangled (type) name. Here is a quick reference of the grammar:

- *b*: boolean
- *c*: char
- *w*: wchar\_t
- *i*: int (signed, unsigned)
- *s*: short (short int)
- *l*: long (long int)
- *j*: long long
- *f*: float
- *d*: double
- *r*: long double
- *v*: void
- *T*: template class (e.g. *Foo<int,char>* ==> *T[3]Foo[2]ic*. [2] means the length of *ic*. It doesn't mean the number of template arguments.)
- *e*: ...
- ?: no return type. the return type of constructors
- \*: non-type template parameter
- *S*: signed
- *U*: unsigned
- *C*: const
- *V*: volatile
- *P*: pointer
- *R*: reference
- *A*: array (e.g. *char[16]* ==> *A16\_c*)
- *F*: function (e.g. *char foo(int)* ==> *Fi\_c*)
- *M*: pointer to member (e.g. *Type::\** ==> *M[4]Type*)
- *Q*: qualified class (e.g. *X::YY* ==> *Q[2]/1]X[2]YY*, *::YY* ==> *Q[2]/0]/2]YY*)
- *[x]*: means  $0x80 + x$
- *O*: means :: (global scope)

Special function names:

- operator + ==> +
- operator new[] ==> new[]
- operator <type> ==> @<encoded type> cast operator

## Code

```
typedef std::basic_string<unsigned char , PTree::Encoding::char_traits> \
Code;
```

## iterator

```
typedef Code::const_iterator iterator;
```

## struct char\_traits

### char\_type

```
typedef unsigned char char_type;
```

### int\_type

```
typedef unsigned long int_type;
```

### pos\_type

```
typedef std::streampos pos_type;
```

### off\_type

```
typedef std::streamoff off_type;
```

### state\_type

```
typedef std::mbstate_t state_type;
```

## assign(char\_type&,const char\_type&)

```
void assign(PTree::Encoding::char_traits::char_type& c1, const \
PTree::Encoding::char_traits::char_type& c2);
```

## eq(const char\_type&,const char\_type&)

```
bool eq(const PTree::Encoding::char_traits::char_type& c1, const \
PTree::Encoding::char_traits::char_type& c2);
```

## lt(const char\_type&,const char\_type&)

```
bool lt(const PTree::Encoding::char_traits::char_type& c1, const \
PTree::Encoding::char_traits::char_type& c2);
```

**compare(const char\_type\*,const char\_type\*,std::size\_t)**

```
int compare(const PTree::Encoding::char_traits::char_type* s1, const \
PTree::Encoding::char_traits::char_type* s2, std::size_t n);
```

**length(const char\_type\*)**

```
std::size_t length(const PTree::Encoding::char_traits::char_type* s);
```

**find(const char\_type\*,std::size\_t,const char\_type&)**

```
const PTree::Encoding::char_traits::char_type * find(const \
PTree::Encoding::char_traits::char_type* s, std::size_t n, const \
PTree::Encoding::char_traits::char_type& a);
```

**move(char\_type\*,const char\_type\*,std::size\_t)**

```
PTree::Encoding::char_traits::char_type * \
move(PTree::Encoding::char_traits::char_type* s1, const \
PTree::Encoding::char_traits::char_type* s2, std::size_t n);
```

**copy(char\_type\*,const char\_type\*,std::size\_t)**

```
PTree::Encoding::char_traits::char_type * \
copy(PTree::Encoding::char_traits::char_type* s1, const \
PTree::Encoding::char_traits::char_type* s2, std::size_t n);
```

**assign(char\_type\*,std::size\_t,char\_type)**

```
PTree::Encoding::char_traits::char_type * \
assign(PTree::Encoding::char_traits::char_type* s, std::size_t n, \
PTree::Encoding::char_traits::char_type a);
```

**to\_char\_type(const int\_type&)**

```
PTree::Encoding::char_traits::char_type to_char_type(const \
PTree::Encoding::char_traits::int_type& c);
```

**to\_int\_type(const char\_type&)**

```
PTree::Encoding::char_traits::int_type to_int_type(const \
PTree::Encoding::char_traits::char_type& c);
```

**eq\_int\_type(const int\_type&,const int\_type&)**

```
bool eq_int_type(const PTree::Encoding::char_traits::int_type& c1, \
const PTree::Encoding::char_traits::int_type& c2);
```

**eof()**

```
PTree::Encoding::char_traits::int_type eof();
```

**not\_eof(const int\_type&)**

```
PTree::Encoding::char_traits::int_type not_eof(const \
PTree::Encoding::char_traits::int_type& c);
```

**do\_init\_static()**

```
void do_init_static();
```

**Encoding()**

```
Encoding( );
```

**Encoding(const Code&)**

```
Encoding(const PTree::Encoding::Code& b);
```

**Encoding(const char\*)**

```
Encoding(const char* b);
```

**Encoding(const char\*,size\_t)**

```
Encoding(const char* b, size_t s);
```

**Encoding(iterator,iterator)**

```
Encoding(PTree::Encoding::iterator b, PTree::Encoding::iterator e);
```

**simple\_name(const Atom\*)**

```
PTree::Encoding simple_name(const PTree::Atom* name);
```

**clear()**

```
void clear();
```

**empty()const**

```
bool empty();
```

**size()const**

```
size_t size();
```

**begin()const**

```
PTree::Encoding::iterator begin();
```

**end()const**

```
PTree::Encoding::iterator end();
```

**front()const**

```
unsigned char front();
```

**at(size\_t)const**

```
unsigned char at(size_t i);
```

**copy()const**

```
const char * copy();
```

return a copy of the underlaying buffer  
FIXME: this is a temporary workaround while there are still places  
that use raw strings

**operator==(const Encoding&)const**

```
bool operator==(const PTree::Encoding& e);
```

**operator==(const std::string&)const**

```
bool operator==(const std::string& s);
```

**operator==(const char\*)const**

```
bool operator==(const char* s);
```

**prepend(unsigned char)**

```
void prepend(unsigned char c);
```

**prepend(const char\*,size\_t)**

```
void prepend(const char* p, size_t s);
```

**prepend(const Encoding&)**

```
void prepend(const PTree::Encoding& e);
```

**append(unsigned char)**

```
void append(unsigned char c);
```

**append(const char\*,size\_t)**

```
void append(const char* p, size_t s);
```

**append(const Encoding&)**

```
void append(const PTree::Encoding& e);
```

**append\_with\_length(const char\*,size\_t)**

```
void append_with_length(const char* s, size_t n);
```

**append\_with\_length(const Encoding&)**

```
void append_with_length(const PTree::Encoding& e);
```

**pop()**

```
unsigned char pop();
```

**pop(size\_t)**

```
void pop(size_t n);
```

**cv\_qualify(const Node\*,const Node\*)**

```
void cv_qualify(const PTree::Node*, const PTree::Node* = 0);
```

**simple\_const()**

```
void simple_const();
```

**global\_scope()**

```
void global_scope();
```

**simple\_name(const Node\*)**

```
void simple_name(const PTree::Node*);
```

**anonymous()**

```
void anonymous();
```

**template\_(const Node\*,const Encoding&)**

```
void template_(const PTree::Node*, const PTree::Encoding&);
```

**qualified(int)**

```
void qualified(int);
```

**destructor(const Node\*)**

```
void destructor(const PTree::Node*);
```

**ptr\_operator(int)**

```
void ptr_operator(int);
```

**ptr\_to\_member(const Encoding&,int)**

```
void ptr_to_member(const PTree::Encoding&, int);
```

**cast\_operator(const Encoding&)**

```
void cast_operator(const PTree::Encoding&);
```

**array()**

```
void array();
```

**array(unsigned long)**

```
void array(unsigned long s);
```

**function(const Encoding&)**

```
void function(const PTree::Encoding& e);
```

**recursion(const Encoding&)**

```
void recursion(const PTree::Encoding& e);
```

**start\_func\_args()**

```
void start_func_args();
```

**end\_func\_args()**

```
void end_func_args();
```

**void\_()**

```
void void_();
```

**ellipsis\_arg()**

```
void ellipsis_arg();
```

**no\_return\_type()**

```
void no_return_type();
```

**value\_temp\_param()**

```
void value_temp_param();
```

**get\_scope()const**

```
PTree::Encoding get_scope();
```

if this Encoding represents a qualified name, return the name of the outer scope

**get\_symbol()const**

```
PTree::Encoding get_symbol();
```

if this Encoding represents a qualified name, return the name of the symbol inside the outer scope, else return the unmodified name

**get\_template\_arguments()const**

```
PTree::Encoding get_template_arguments();
```

**unmangled()const**

```
std::string unmangled();
```

**make\_name()**

```
PTree::Node * make_name();
```

**make\_qname()**

```
PTree::Node * make_qname();
```

**make\_ptree(Node\*)**

```
PTree::Node * make_ptree(PTree::Node*);
```

**is\_simple\_name()const**

```
bool is_simple_name();
```

**is\_global\_scope()const**

```
bool is_global_scope();
```

**is\_qualified()const**

```
bool is_qualified();
```

**is\_function()const**

```
bool is_function();
```

**is\_template()const**

```
bool is_template();
```

**name\_to\_ptree()**

```
PTree::Node * name_to_ptree();
```

**operator<(const Encoding&,const Encoding&)**

```
bool operator<(const PTree::Encoding&, const PTree::Encoding&);
```

**operator<<(std::ostream&,const Encoding&)**

```
std::ostream & operator<<(std::ostream&, const PTree::Encoding&);
```

**bool\_t**

```
PTree::Node * bool_t;
```

**char\_t**

```
PTree::Node * char_t;
```

**wchar\_t\_t**

```
PTree::Node * wchar_t_t;
```

**int\_t**

```
PTree::Node * int_t;
```

**short\_t**

```
PTree::Node * short_t;
```

**long\_t**

```
PTree::Node * long_t;
```

**float\_t**

```
PTree::Node * float_t;
```

**double\_t**

```
PTree::Node * double_t;
```

**void\_t**

```
PTree::Node * void_t;
```

**signed\_t**

```
PTree::Node * signed_t;
```

**unsigned\_t**

```
PTree::Node * unsigned_t;
```

**const\_t**

```
PTree::Node * const_t;
```

**volatile\_t**

```
PTree::Node * volatile_t;
```

### **operator\_name**

```
PTree::Node * operator_name;
```

### **new\_operator**

```
PTree::Node * new_operator;
```

### **anew\_operator**

```
PTree::Node * anew_operator;
```

### **delete\_operator**

```
PTree::Node * delete_operator;
```

### **adelete\_operator**

```
PTree::Node * adelete_operator;
```

### **star**

```
PTree::Node * star;
```

### **ampersand**

```
PTree::Node * ampersand;
```

### **comma**

```
PTree::Node * comma;
```

### **dots**

```
PTree::Node * dots;
```

### **scope**

```
PTree::Node * scope;
```

### **tilder**

```
PTree::Node * tilder;
```

### **left\_paren**

```
PTree::Node * left_paren;
```

### **right\_paren**

```
PTree::Node * right_paren;
```

**left\_bracket**

```
PTree::Node * left_bracket;
```

**right\_bracket**

```
PTree::Node * right_bracket;
```

**left\_angle**

```
PTree::Node * left_angle;
```

**right\_angle**

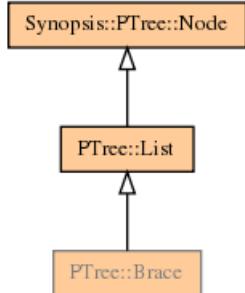
```
PTree::Node * right_angle;
```

**end\_of\_scope()const**

```
PTree::Encoding::iterator end_of_scope();
```

**my\_buffer**

```
PTree::Encoding::Code my_buffer;
```

**class Brace****Brace(Node\*,Node\*)**

```
Brace(PTree::Node* p, PTree::Node* q);
```

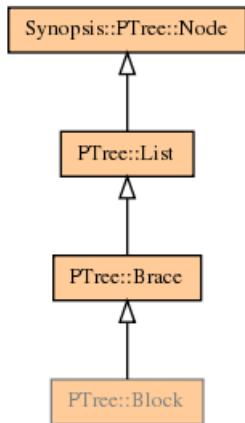
**Brace(Node\*,Node\*,Node\*)**

```
Brace(PTree::Node* ob, PTree::Node* body, PTree::Node* cb);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class Block



### Block(Node\*,Node\*)

```
Block(PTree::Node* p, PTree::Node* q);
```

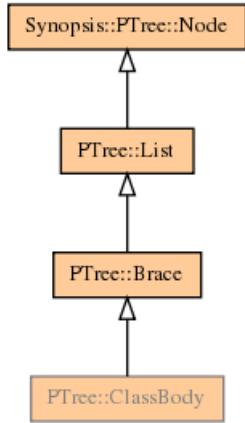
### Block(Node\*,Node\*,Node\*)

```
Block(PTree::Node* ob, PTree::Node* bdy, PTree::Node* cb);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class ClassBody



### ClassBody(Node\*,Node\*)

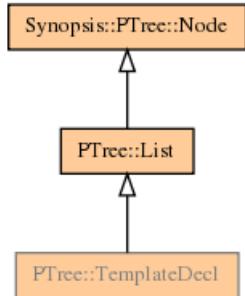
```
ClassBody(PTree::Node* p, PTree::Node* q);
```

### ClassBody(Node\*,Node\*,Node\*)

```
ClassBody(PTree::Node* ob, PTree::Node* bdy, PTree::Node* cb);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**class TemplateDecl****TemplateDecl(Node\*,Node\*)**

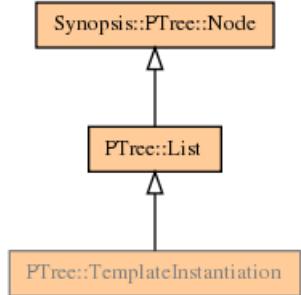
```
TemplateDecl(PTree::Node* p, PTree::Node* q);
```

**TemplateDecl(Node\*)**

```
TemplateDecl(PTree::Node* p);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

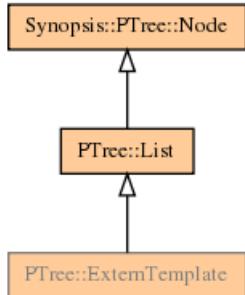
**class TemplateInstantiation****TemplateInstantiation(Node\*)**

```
TemplateInstantiation(PTree::Node* p);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class ExternTemplate



### ExternTemplate(Node\*,Node\*)

```
ExternTemplate(PTree::Node* p, PTree::Node* q);
```

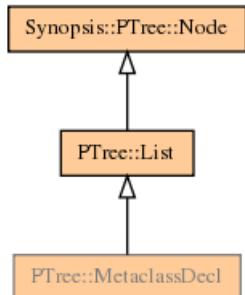
### ExternTemplate(Node\*)

```
ExternTemplate(PTree::Node* p);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class MetaclassDecl



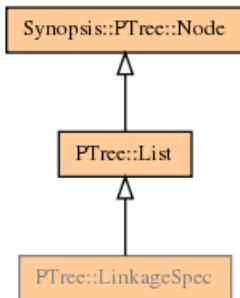
### MetaclassDecl(Node\*,Node\*)

```
MetaclassDecl(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class LinkageSpec



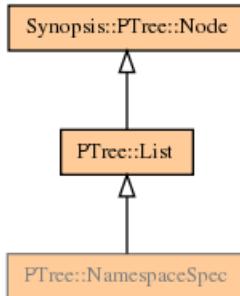
### LinkageSpec(Node\*,Node\*)

```
LinkageSpec(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class NamespaceSpec



### NamespaceSpec(Node\*,Node\*)

```
NamespaceSpec(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

### get\_comments()

```
PTree::Node * get_comments();
```

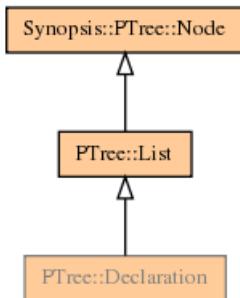
### set\_comments(Node\*)

```
void set_comments(PTree::Node* c);
```

### my\_comments

```
PTree::Node * my_comments;
```

## class Declaration



### Declaration(Node\*,Node\*)

```
Declaration(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

### get\_comments()

```
PTree::Node * get_comments();
```

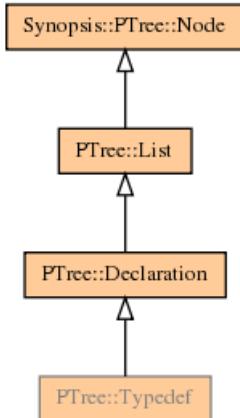
### set\_comments(Node\*)

```
void set_comments(PTree::Node* c);
```

### my\_comments

```
PTree::Node * my_comments;
```

## class Typedef



### Typedef(Node\*)

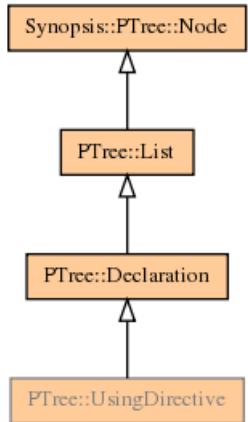
```
Typedef(PTree::Node* p);
```

**Typedef(Node\*,Node\*)**

```
Typedef (PTree::Node* p, PTree::Node* q);
```

**accept(Visitor\*)**

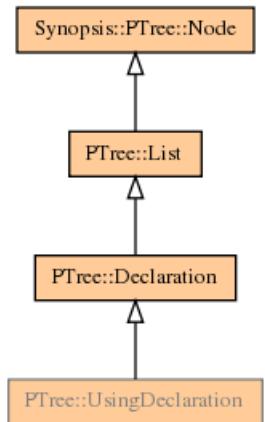
```
void accept(PTree::Visitor* visitor);
```

**class UsingDirective****UsingDirective(Node\*)**

```
UsingDirective(PTree::Node* p);
```

**accept(Visitor\*)**

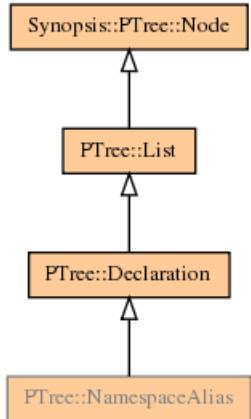
```
void accept(PTree::Visitor* visitor);
```

**class UsingDeclaration****UsingDeclaration(Node\*,Node\*)**

```
UsingDeclaration(PTree::Node* p, PTree::Node* q);
```

**accept(Visitor\*)**

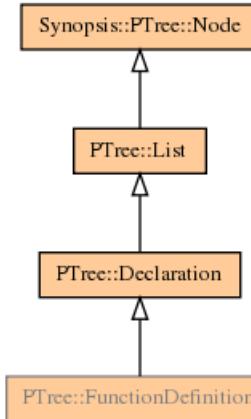
```
void accept(PTree::Visitor* visitor);
```

**class NamespaceAlias****NamespaceAlias(Node\*,Node\*)**

```
NamespaceAlias(PTree::Node* p, PTree::Node* q);
```

**accept(Visitor\*)**

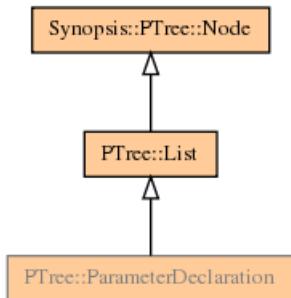
```
void accept(PTree::Visitor* visitor);
```

**class FunctionDefinition****FunctionDefinition(Node\*,Node\*)**

```
FunctionDefinition(PTree::Node* p, PTree::Node* q);
```

**accept(Visitor\*)**

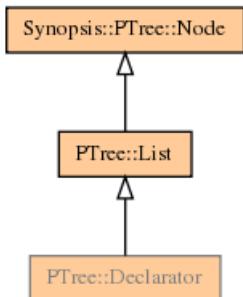
```
void accept(PTree::Visitor* visitor);
```

**class ParameterDeclaration****ParameterDeclaration(Node\*,Node\*,Node\*)**

```
ParameterDeclaration(PTree::Node* mod, PTree::Node* type, PTree::Node* \
decl);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**class Declarator****Declarator(Node\*)**

```
Declarator(PTree::Node*);
```

**Declarator(Node\*,const Encoding&,const Encoding&,Node\*)**

```
Declarator(PTree::Node*, const PTree::Encoding&, const \
PTree::Encoding&, PTree::Node*);
```

**Declarator(const Encoding&,const Encoding&,Node\*)**

```
Declarator(const PTree::Encoding&, const PTree::Encoding&, \
PTree::Node*);
```

**Declarator(Node\*,Node\*,const Encoding&,const Encoding&,Node\*)**

```
Declarator(PTree::Node*, PTree::Node*, const PTree::Encoding&, const \
PTree::Encoding&, PTree::Node*);
```

**Declarator(Node\*,const Encoding&)**

```
Declarator(PTree::Node*, const PTree::Encoding&);
```

**Declarator(const Encoding&)**

```
Declarator(const PTree::Encoding&);
```

**Declarator(Declarator\*,Node\*,Node\*)**

```
Declarator(PTree::Declarator*, PTree::Node*, PTree::Node*);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**encoded\_type()const**

```
PTree::Encoding encoded_type();
```

**encoded\_name()const**

```
PTree::Encoding encoded_name();
```

**set\_encoded\_type(const Encoding&)**

```
void set_encoded_type(const PTree::Encoding& t);
```

**name()**

```
PTree::Node * name();
```

**initializer()**

```
PTree::Node * initializer();
```

**get\_comments()**

```
PTree::Node * get_comments();
```

**set\_comments(Node\*)**

```
void set_comments(PTree::Node* c);
```

**my\_type**

```
PTree::Encoding my_type;
```

**my\_name**

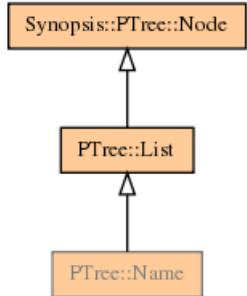
```
PTree::Encoding my_name;
```

**my\_declared\_name**

```
PTree::Node * my_declared_name;
```

**my\_comments**

```
PTree::Node * my_comments;
```

**class Name****Name(Node\*,const Encoding&)**

```
Name(PTree::Node*, const PTree::Encoding&);
```

**accept(Visitor\*)**

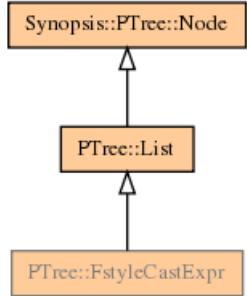
```
void accept(PTree::Visitor* visitor);
```

**encoded\_name()const**

```
PTree::Encoding encoded_name();
```

**my\_name**

```
PTree::Encoding my_name;
```

**class FstyleCastExpr****FstyleCastExpr(const Encoding&,Node\*,Node\*)**

```
FstyleCastExpr(const PTree::Encoding&, PTree::Node*, PTree::Node*);
```

**accept(Visitor\*)**

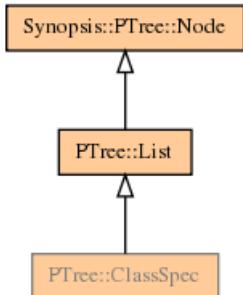
```
void accept(PTree::Visitor* visitor);
```

**encoded\_type()const**

```
PTree::Encoding encoded_type();
```

**my\_type**

```
PTree::Encoding my_type;
```

**class ClassSpec****ClassSpec(Node\*,Node\*,Node\*)**

```
ClassSpec(PTree::Node*, PTree::Node*, PTree::Node*);
```

**ClassSpec(const Encoding&,Node\*,Node\*,Node\*)**

```
ClassSpec(const PTree::Encoding&, PTree::Node*, PTree::Node*, \
PTree::Node*);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**encoded\_name()const**

```
PTree::Encoding encoded_name();
```

**set\_encoded\_name(const Encoding&)**

```
void set_encoded_name(const PTree::Encoding& n);
```

**get\_comments()**

```
PTree::Node * get_comments();
```

**base\_clause()const**

```
const PTree::Node * base_clause();
```

The list of base classes, i.e. [: [public A] , [public virtual B] ...]

**body()**

```
PTree::ClassBody * body();
```

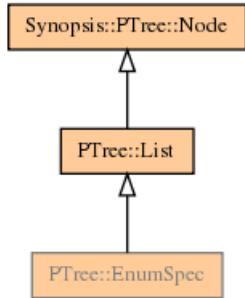
The following assumes proper C++, i.e. no OpenC++ extension.

**my\_name**

```
PTree::Encoding my_name;
```

**my\_comments**

```
PTree::Node * my_comments;
```

**class EnumSpec****EnumSpec(Node\*)**

```
EnumSpec(PTree::Node* head);
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**encoded\_name()const**

```
PTree::Encoding encoded_name();
```

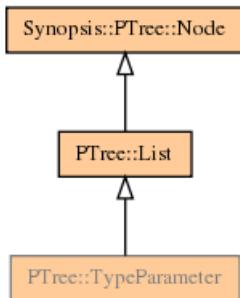
**set\_encoded\_name(const Encoding&)**

```
void set_encoded_name(const PTree::Encoding& n);
```

**my\_name**

```
PTree::Encoding my_name;
```

## class TypeParameter



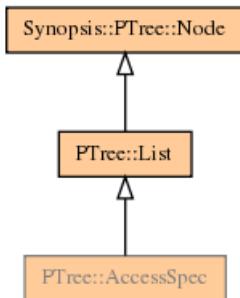
### TypeParameter(Node\*,Node\*)

```
TypeParameter(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class AccessSpec



### AccessSpec(Node\*,Node\*,Node\*)

```
AccessSpec(PTree::Node* p, PTree::Node* q, PTree::Node* c);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

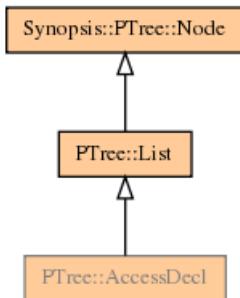
### get\_comments()

```
PTree::Node * get_comments();
```

### my\_comments

```
PTree::Node * my_comments;
```

## class AccessDecl



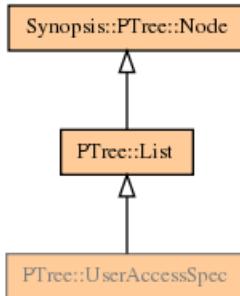
### AccessDecl(Node\*,Node\*)

```
AccessDecl(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class UserAccessSpec



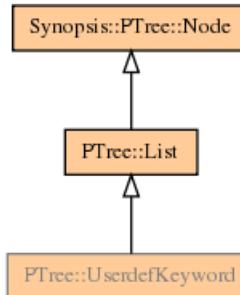
### UserAccessSpec(Node\*,Node\*)

```
UserAccessSpec(PTree::Node* p, PTree::Node* q);
```

### accept(Visitor\*)

```
void accept(PTree::Visitor* visitor);
```

## class UserdefKeyword

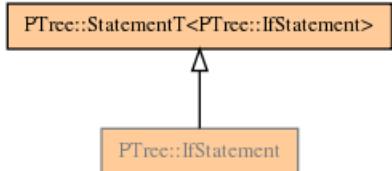


**UserdefKeyword(Node\*,Node\*)**

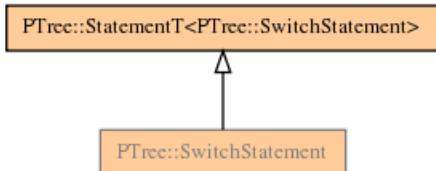
```
UserdefKeyword(PTree::Node* p, PTree::Node* q);
```

**accept(Visitor\*)**

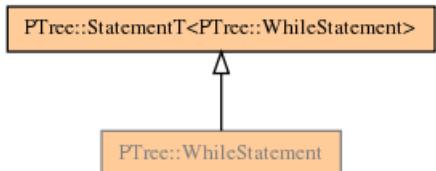
```
void accept(PTree::Visitor* visitor);
```

**class IfStatement****IfStatement(Node\*,Node\*)**

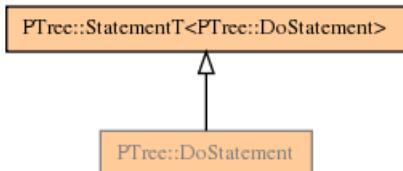
```
IfStatement(PTree::Node* p, PTree::Node* q);
```

**class SwitchStatement****SwitchStatement(Node\*,Node\*)**

```
SwitchStatement(PTree::Node* p, PTree::Node* q);
```

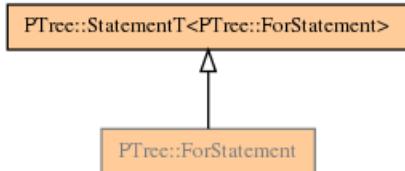
**class WhileStatement****WhileStatement(Node\*,Node\*)**

```
WhileStatement(PTree::Node* p, PTree::Node* q);
```

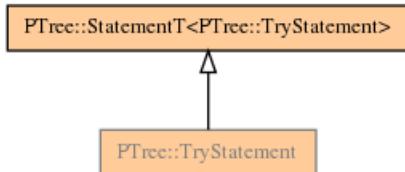
**class DoStatement**

**DoStatement(Node\*,Node\*)**

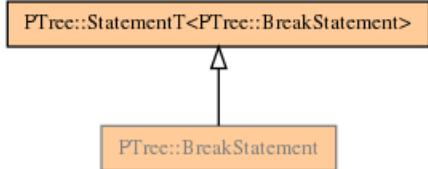
```
DoStatement(PTree::Node* p, PTree::Node* q);
```

**class ForStatement****ForStatement(Node\*,Node\*)**

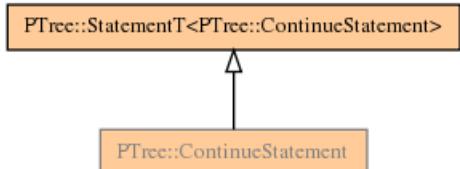
```
ForStatement(PTree::Node* p, PTree::Node* q);
```

**class TryStatement****TryStatement(Node\*,Node\*)**

```
TryStatement(PTree::Node* p, PTree::Node* q);
```

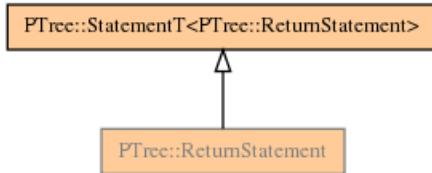
**class BreakStatement****BreakStatement(Node\*,Node\*)**

```
BreakStatement(PTree::Node* p, PTree::Node* q);
```

**class ContinueStatement****ContinueStatement(Node\*,Node\*)**

```
ContinueStatement(PTree::Node* p, PTree::Node* q);
```

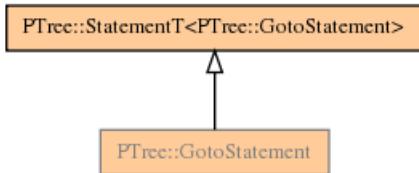
## class ReturnStatement



### ReturnStatement(Node\*,Node\*)

```
ReturnStatement(PTree::Node* p, PTree::Node* q);
```

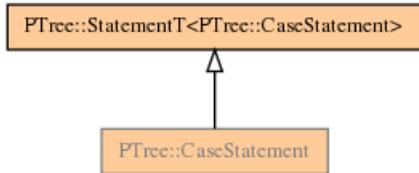
## class GotoStatement



### GotoStatement(Node\*,Node\*)

```
GotoStatement(PTree::Node* p, PTree::Node* q);
```

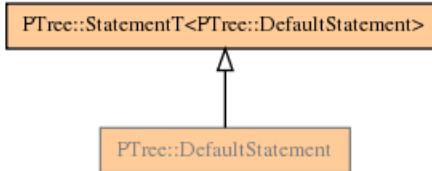
## class CaseStatement



### CaseStatement(Node\*,Node\*)

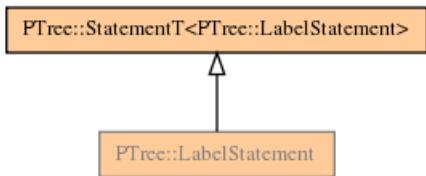
```
CaseStatement(PTree::Node* p, PTree::Node* q);
```

## class DefaultStatement

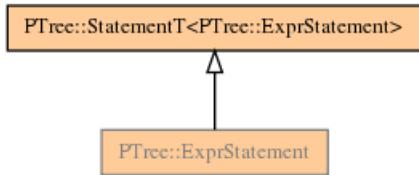


### DefaultStatement(Node\*,Node\*)

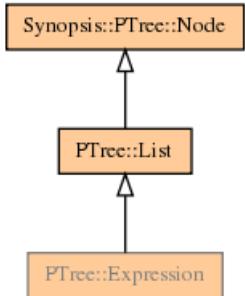
```
DefaultStatement(PTree::Node* p, PTree::Node* q);
```

**class LabelStatement****LabelStatement(Node\*,Node\*)**

```
LabelStatement(PTree::Node* p, PTree::Node* q);
```

**class ExprStatement****ExprStatement(Node\*,Node\*)**

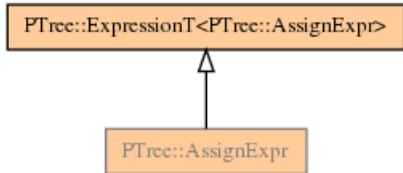
```
ExprStatement(PTree::Node* p, PTree::Node* q);
```

**class Expression****Expression(Node\*,Node\*)**

```
Expression(PTree::Node* p, PTree::Node* q);
```

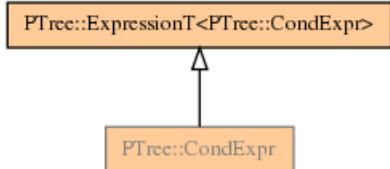
**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

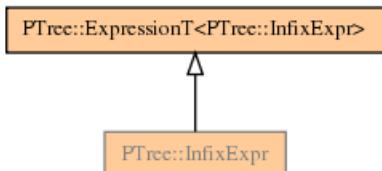
**class AssignExpr**

**AssignExpr(Node\*,Node\*)**

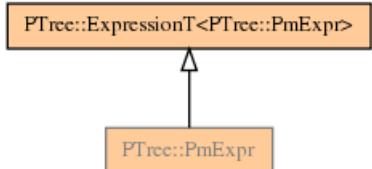
```
AssignExpr(PTree::Node* p, PTree::Node* q);
```

**class CondExpr****CondExpr(Node\*,Node\*)**

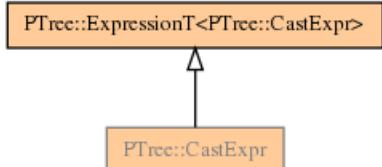
```
CondExpr(PTree::Node* p, PTree::Node* q);
```

**class InfixExpr****InfixExpr(Node\*,Node\*)**

```
InfixExpr(PTree::Node* p, PTree::Node* q);
```

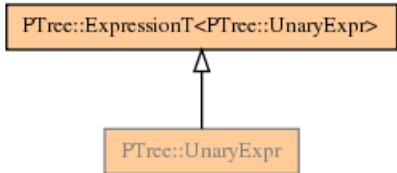
**class PmExpr****PmExpr(Node\*,Node\*)**

```
PmExpr(PTree::Node* p, PTree::Node* q);
```

**class CastExpr****CastExpr(Node\*,Node\*)**

```
CastExpr(PTree::Node* p, PTree::Node* q);
```

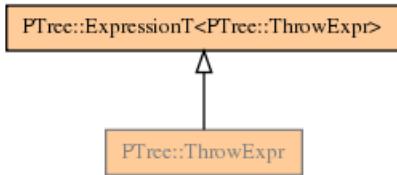
## class UnaryExpr



### UnaryExpr(Node\*,Node\*)

```
UnaryExpr(PTree::Node* p, PTree::Node* q);
```

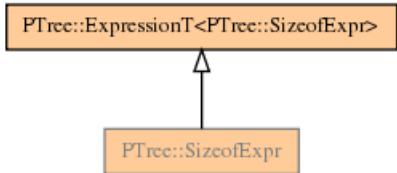
## class ThrowExpr



### ThrowExpr(Node\*,Node\*)

```
ThrowExpr(PTree::Node* p, PTree::Node* q);
```

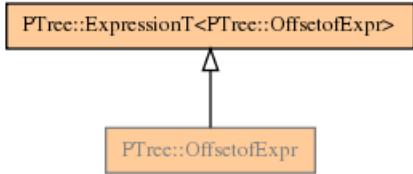
## class SizeofExpr



### SizeofExpr(Node\*,Node\*)

```
SizeofExpr(PTree::Node* p, PTree::Node* q);
```

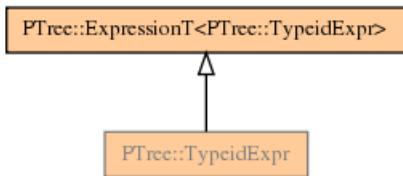
## class OffsetofExpr



### OffsetofExpr(Node\*,Node\*)

```
OffsetofExpr(PTree::Node* p, PTree::Node* q);
```

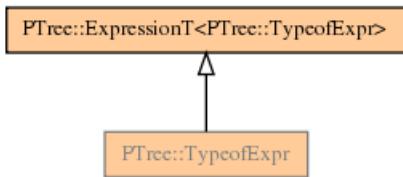
## class TypeidExpr



### TypeidExpr(Node\*,Node\*)

```
TypeidExpr(PTree::Node* p, PTree::Node* q);
```

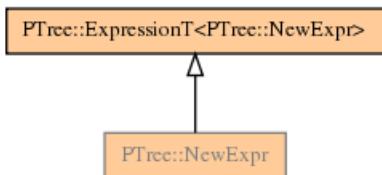
## class TypeofExpr



### TypeofExpr(Node\*,Node\*)

```
TypeofExpr(PTree::Node* p, PTree::Node* q);
```

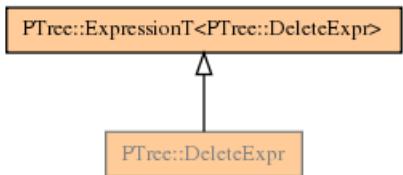
## class NewExpr



### NewExpr(Node\*,Node\*)

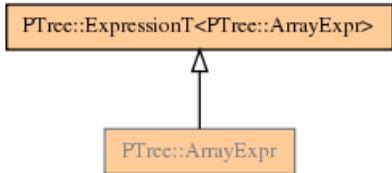
```
NewExpr(PTree::Node* p, PTree::Node* q);
```

## class DeleteExpr

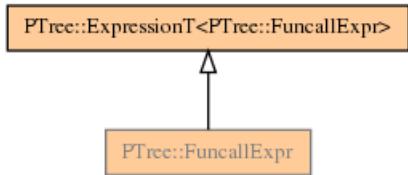


### DeleteExpr(Node\*,Node\*)

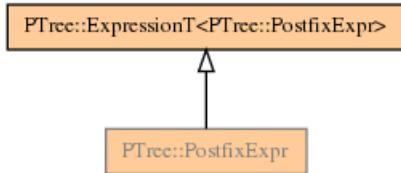
```
DeleteExpr(PTree::Node* p, PTree::Node* q);
```

**class ArrayExpr****ArrayExpr(Node\*,Node\*)**

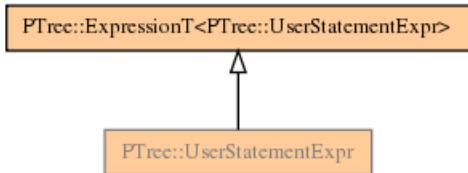
```
ArrayExpr(PTree::Node* p, PTree::Node* q);
```

**class FuncallExpr****FuncallExpr(Node\*,Node\*)**

```
FuncallExpr(PTree::Node* p, PTree::Node* q);
```

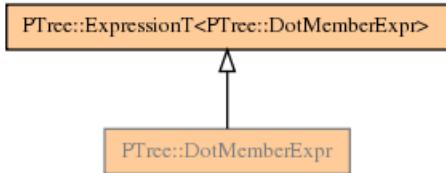
**class PostfixExpr****PostfixExpr(Node\*,Node\*)**

```
PostfixExpr(PTree::Node* p, PTree::Node* q);
```

**class UserStatementExpr****UserStatementExpr(Node\*,Node\*)**

```
UserStatementExpr(PTree::Node* p, PTree::Node* q);
```

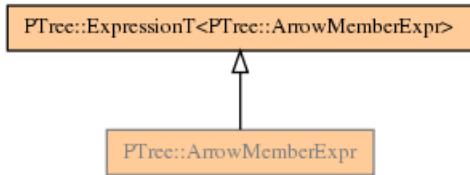
## class DotMemberExpr



### DotMemberExpr(Node\*,Node\*)

```
DotMemberExpr(PTree::Node* p, PTree::Node* q);
```

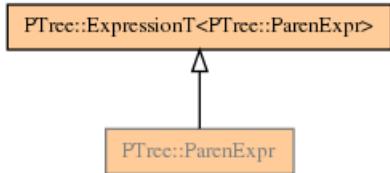
## class ArrowMemberExpr



### ArrowMemberExpr(Node\*,Node\*)

```
ArrowMemberExpr(PTree::Node* p, PTree::Node* q);
```

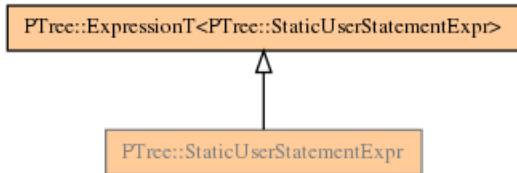
## class ParenExpr



### ParenExpr(Node\*,Node\*)

```
ParenExpr(PTree::Node* p, PTree::Node* q);
```

## class StaticUserStatementExpr



### StaticUserStatementExpr(Node\*,Node\*)

```
StaticUserStatementExpr(PTree::Node* p, PTree::Node* q);
```

## class Node



**~Node()**

```
~Node();
```

**is\_atom()const**

```
bool is_atom();
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

**begin()const**

```
const char * begin();
```

return the start address of this Ptree in the buffer

**end()const**

```
const char * end();
```

return the one-past-the-end address of this Ptree in the buffer

**position()const**

```
const char * position();
```

**length()const**

```
size_t length();
```

**car()const**

```
const PTree::Node * car();
```

**car()**

```
PTree::Node * car();
```

**cdr()const**

```
const PTree::Node * cdr();
```

**cdr()**

```
PTree::Node * cdr();
```

**set\_car(Node\*)**

```
void set_car(PTree::Node* p);
```

**set\_cdr(Node\*)**

```
void set_cdr(PTree::Node* p);
```

**encoded\_type()const**

```
PTree::Encoding encoded_type();
```

**encoded\_name()const**

```
PTree::Encoding encoded_name();
```

**Node(const char\*,size\_t)**

```
Node(const char* ptr, size_t len);
```

used by Atom

**Node(Node\*,Node\*)**

```
Node(PTree::Node* p, PTree::Node* q);
```

used by List

**union `0106****struct `0107****child**

```
PTree::Node * child;
```

**next**

```
PTree::Node * next;
```

**struct `0108****position**

```
const char * position;
```

**length**

```
int length;
```

**nonleaf**

```
PTree::Node::`0106::`0107 nonleaf;
```

**leaf**

```
PTree::Node::`0106::`0108 leaf;
```

**my\_data**

```
PTree::Node::`0106 my_data;
```

**class Iterator**

```
PTree::Iterator
```

**Iterator(Node\*)**

```
Iterator(PTree::Node* p);
```

**operator()()**

```
PTree::Node * operator()();
```

**pop()**

```
PTree::Node * pop();
```

**next(Node\*&)**

```
bool next(PTree::Node*&);
```

**reset(Node\*)**

```
void reset(PTree::Node* p);
```

**get()**

```
PTree::Node * get();
```

**operator\*()**

```
PTree::Node * operator*();
```

**operator++()**

```
PTree::Node * operator++();
```

**operator++(int)**

```
PTree::Node * operator++(int);
```

**empty()**

```
bool empty();
```

**ptree**

```
PTree::Node * ptree;
```

**class Array**

```
PTree::Array
```

**Array(size\_t)**

```
Array(size_t = 8);
```

**number()**

```
size_t number();
```

**operator[](size\_t)**

```
PTree::Node * & operator[](size_t index);
```

**ref(size\_t)**

```
PTree::Node * & ref(size_t index);
```

**append(Node\*)**

```
void append(PTree::Node*);
```

**clear()**

```
void clear();
```

**all()**

```
PTree::Node * all();
```

**num**

```
size_t num;
```

**size**

```
size_t size;
```

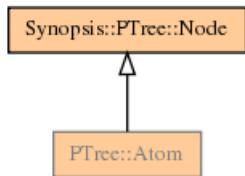
**array**

```
PTree::Node ** array;
```

**default\_buf**

```
[8] PTree::Node * default_buf;
```

## class Atom



**Atom(const char\*,size\_t)**

```
Atom(const char* p, size_t l);
```

**Atom(const Token&)**

```
Atom(const Token& t);
```

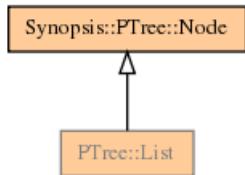
**is\_atom()const**

```
bool is_atom();
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class List



**List(Node\*,Node\*)**

```
List(PTree::Node* p, PTree::Node* q);
```

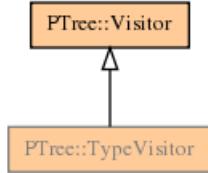
**is\_atom()const**

```
bool is_atom();
```

**accept(Visitor\*)**

```
void accept(PTree::Visitor* visitor);
```

## class TypeVisitor



**TypeVisitor()**

```
TypeVisitor();
```

**type\_of(Node\*)**

```
Token::Type type_of(PTree::Node* node);
```

**visit(Literal\*)**

```
void visit(PTree::Literal*);
```

**visit(Identifier\*)**

```
void visit(PTree::Identifier*);
```

**visit(Keyword\*)**

```
void visit(PTree::Keyword* kwd);
```

**visit(Typedef\*)**

```
void visit(PTree::Typedef*);
```

**visit(TemplateDecl\*)**

```
void visit(PTree::TemplateDecl*);
```

**visit(TemplateInstantiation\*)**

```
void visit(PTree::TemplateInstantiation*);
```

**visit(ExternTemplate\*)**

```
void visit(PTree::ExternTemplate*);
```

**visit(MetaclassDecl\*)**

```
void visit(PTree::MetaclassDecl*);
```

**visit(ParameterDeclaration\*)**

```
void visit(PTree::ParameterDeclaration*);
```

**visit(LinkageSpec\*)**

```
void visit(PTree::LinkageSpec*);
```

**visit(NamespaceSpec\*)**

```
void visit(PTree::NamespaceSpec*);
```

**visit(NamespaceAlias\*)**

```
void visit(PTree::NamespaceAlias*);
```

**visit(UsingDirective\*)**

```
void visit(PTree::UsingDirective*);
```

**visit(Declaration\*)**

```
void visit(PTree::Declaration*);
```

**visit(UsingDeclaration\*)**

```
void visit(PTree::UsingDeclaration*);
```

**visit(Declarator\*)**

```
void visit(PTree::Declarator*);
```

**visit(Name\*)**

```
void visit(PTree::Name*);
```

**visit(FstyleCastExpr\*)**

```
void visit(PTree::FstyleCastExpr*);
```

**visit(ClassSpec\*)**

```
void visit(PTree::ClassSpec*);
```

**visit(EnumSpec\*)**

```
void visit(PTree::EnumSpec*);
```

**visit(TypeParameter\*)**

```
void visit(PTree::TypeParameter*);
```

**visit(AccessSpec\*)**

```
void visit(PTree::AccessSpec*);
```

**visit(AccessDecl\*)**

```
void visit(PTree::AccessDecl*);
```

**visit(UserAccessSpec\*)**

```
void visit(PTree::UserAccessSpec*);
```

### **visit(IfStatement\*)**

```
void visit(PTree::IfStatement*);
```

### **visit(SwitchStatement\*)**

```
void visit(PTree::SwitchStatement*);
```

### **visit(WhileStatement\*)**

```
void visit(PTree::WhileStatement*);
```

### **visit(DoStatement\*)**

```
void visit(PTree::DoStatement*);
```

### **visit(ForStatement\*)**

```
void visit(PTree::ForStatement*);
```

### **visit(TryStatement\*)**

```
void visit(PTree::TryStatement*);
```

### **visit(BreakStatement\*)**

```
void visit(PTree::BreakStatement*);
```

### **visit(ContinueStatement\*)**

```
void visit(PTree::ContinueStatement*);
```

### **visit(ReturnStatement\*)**

```
void visit(PTree::ReturnStatement*);
```

### **visit(GotoStatement\*)**

```
void visit(PTree::GotoStatement*);
```

### **visit(CaseStatement\*)**

```
void visit(PTree::CaseStatement*);
```

### **visit(DefaultStatement\*)**

```
void visit(PTree::DefaultStatement*);
```

### **visit(LabelStatement\*)**

```
void visit(PTree::LabelStatement*);
```

**visit(ExprStatement\*)**

```
void visit(PTree::ExprStatement*);
```

**visit(Expression\*)**

```
void visit(PTree::Expression*);
```

**visit(AssignExpr\*)**

```
void visit(PTree::AssignExpr*);
```

**visit(CondExpr\*)**

```
void visit(PTree::CondExpr*);
```

**visit(InfixExpr\*)**

```
void visit(PTree::InfixExpr*);
```

**visit(PmExpr\*)**

```
void visit(PTree::PmExpr*);
```

**visit(CastExpr\*)**

```
void visit(PTree::CastExpr*);
```

**visit(UnaryExpr\*)**

```
void visit(PTree::UnaryExpr*);
```

**visit(ThrowExpr\*)**

```
void visit(PTree::ThrowExpr*);
```

**visit(SizeofExpr\*)**

```
void visit(PTree::SizeofExpr*);
```

**visit(TypeidExpr\*)**

```
void visit(PTree::TypeidExpr*);
```

**visit(TypeofExpr\*)**

```
void visit(PTree::TypeofExpr*);
```

**visit(NewExpr\*)**

```
void visit(PTree::NewExpr*);
```

**visit(DeleteExpr\*)**

```
void visit(PTree::DeleteExpr*);
```

**visit(ArrayExpr\*)**

```
void visit(PTree::ArrayExpr*);
```

**visit(FuncallExpr\*)**

```
void visit(PTree::FuncallExpr*);
```

**visit(PostfixExpr\*)**

```
void visit(PTree::PostfixExpr*);
```

**visit(DotMemberExpr\*)**

```
void visit(PTree::DotMemberExpr*);
```

**visit(ArrowMemberExpr\*)**

```
void visit(PTree::ArrowMemberExpr*);
```

**visit(ParenExpr\*)**

```
void visit(PTree::ParenExpr*);
```

**my\_type**

```
Token::Type my_type;
```

**class Visitor**

The Visitor class is used to dynamically resolve type information about a given Node. The default implementation does nothing, so you only need to implement the methods you actually need. Any types for which no corresponding 'visit' methods exist will be caught by the 'visit' of the closest parent.

**~Visitor()**

```
~Visitor();
```

**visit(Node\*)**

```
void visit(PTree::Node*);
```

**visit(Atom\*)**

```
void visit(PTree::Atom*);
```

**visit(List\*)**

```
void visit(PTree::List*);
```

### **visit(Literal\*)**

```
void visit(PTree::Literal*);
```

### **visit(CommentedAtom\*)**

```
void visit(PTree::CommentedAtom*);
```

### **visit(DupAtom\*)**

```
void visit(PTree::DupAtom*);
```

### **visit(Identifier\*)**

```
void visit(PTree::Identifier*);
```

### **visit(Keyword\*)**

```
void visit(PTree::Keyword*);
```

### **visit(Kwd::Auto\*)**

```
void visit(PTree::Kwd::Auto*);
```

### **visit(Kwd::Break\*)**

```
void visit(PTree::Kwd::Break*);
```

### **visit(Kwd::Bool\*)**

```
void visit(PTree::Kwd::Bool*);
```

### **visit(Kwd::Case\*)**

```
void visit(PTree::Kwd::Case*);
```

### **visit(Kwd::Catch\*)**

```
void visit(PTree::Kwd::Catch*);
```

### **visit(Kwd::Char\*)**

```
void visit(PTree::Kwd::Char*);
```

### **visit(Kwd::Class\*)**

```
void visit(PTree::Kwd::Class*);
```

### **visit(Kwd::Continue\*)**

```
void visit(PTree::Kwd::Continue*);
```

**visit(Kwd::Const\*)**

```
void visit(PTree::Kwd::Const*);
```

**visit(Kwd::Default\*)**

```
void visit(PTree::Kwd::Default*);
```

**visit(Kwd::Delete\*)**

```
void visit(PTree::Kwd::Delete*);
```

**visit(Kwd::Double\*)**

```
void visit(PTree::Kwd::Double*);
```

**visit(Kwd::Do\*)**

```
void visit(PTree::Kwd::Do*);
```

**visit(Kwd::Else\*)**

```
void visit(PTree::Kwd::Else*);
```

**visit(Kwd::Extern\*)**

```
void visit(PTree::Kwd::Extern*);
```

**visit(Kwd::Float\*)**

```
void visit(PTree::Kwd::Float*);
```

**visit(Kwd::For\*)**

```
void visit(PTree::Kwd::For*);
```

**visit(Kwd::Friend\*)**

```
void visit(PTree::Kwd::Friend*);
```

**visit(Kwd::Goto\*)**

```
void visit(PTree::Kwd::Goto*);
```

**visit(Kwd::Inline\*)**

```
void visit(PTree::Kwd::Inline*);
```

**visit(Kwd::If\*)**

```
void visit(PTree::Kwd::If*);
```

**visit(Kwd::Int\*)**

```
void visit(PTree::Kwd::Int*);
```

**visit(Kwd::Long\*)**

```
void visit(PTree::Kwd::Long*);
```

**visit(Kwd::Mutable\*)**

```
void visit(PTree::Kwd::Mutable*);
```

**visit(Kwd::Namespace\*)**

```
void visit(PTree::Kwd::Namespace*);
```

**visit(Kwd::New\*)**

```
void visit(PTree::Kwd::New*);
```

**visit(Kwd::Operator\*)**

```
void visit(PTree::Kwd::Operator*);
```

**visit(Kwd::Private\*)**

```
void visit(PTree::Kwd::Private*);
```

**visit(Kwd::Protected\*)**

```
void visit(PTree::Kwd::Protected*);
```

**visit(Kwd::Public\*)**

```
void visit(PTree::Kwd::Public*);
```

**visit(Kwd::Register\*)**

```
void visit(PTree::Kwd::Register*);
```

**visit(Kwd::Return\*)**

```
void visit(PTree::Kwd::Return*);
```

**visit(Kwd::Short\*)**

```
void visit(PTree::Kwd::Short*);
```

**visit(Kwd::Signed\*)**

```
void visit(PTree::Kwd::Signed*);
```

**visit(Kwd::Static\*)**

```
void visit(PTree::Kwd::Static*);
```

**visit(Kwd::Struct\*)**

```
void visit(PTree::Kwd::Struct*);
```

**visit(Kwd::Switch\*)**

```
void visit(PTree::Kwd::Switch*);
```

**visit(Kwd::Template\*)**

```
void visit(PTree::Kwd::Template*);
```

**visit(Kwd::This\*)**

```
void visit(PTree::Kwd::This*);
```

**visit(Kwd::Throw\*)**

```
void visit(PTree::Kwd::Throw*);
```

**visit(Kwd::Try\*)**

```
void visit(PTree::Kwd::Try*);
```

**visit(Kwd::Typedef\*)**

```
void visit(PTree::Kwd::Typedef*);
```

**visit(Kwd::Typename\*)**

```
void visit(PTree::Kwd::Typename*);
```

**visit(Kwd::Union\*)**

```
void visit(PTree::Kwd::Union*);
```

**visit(Kwd::Unsigned\*)**

```
void visit(PTree::Kwd::Unsigned*);
```

**visit(Kwd::Using\*)**

```
void visit(PTree::Kwd::Using*);
```

**visit(Kwd::Virtual\*)**

```
void visit(PTree::Kwd::Virtual*);
```

**visit(Kwd::Void\*)**

```
void visit(PTree::Kwd::Void*);
```

**visit(Kwd::Volatile\*)**

```
void visit(PTree::Kwd::Volatile*);
```

**visit(Kwd::WChar\*)**

```
void visit(PTree::Kwd::WChar*);
```

**visit(Kwd::While\*)**

```
void visit(PTree::Kwd::While*);
```

**visit(Brace\*)**

```
void visit(PTree::Brace*);
```

```
[ { [ <statement>* ] } ]
```

**visit(Block\*)**

```
void visit(PTree::Block*);
```

```
[ { [ <statement>* ] } ]
```

**visit(ClassBody\*)**

```
void visit(PTree::ClassBody*);
```

**visit(Typedef\*)**

```
void visit(PTree::Typedef*);
```

**visit(TemplateDecl\*)**

```
void visit(PTree::TemplateDecl*);
```

```
[ template < [types] > [decl] ]
```

**visit(TemplateInstantiation\*)**

```
void visit(PTree::TemplateInstantiation*);
```

**visit(ExternTemplate\*)**

```
void visit(PTree::ExternTemplate*);
```

**visit(MetaclassDecl\*)**

```
void visit(PTree::MetaclassDecl*);
```

**visit(LinkageSpec\*)**

```
void visit(PTree::LinkageSpec*);
```

[ extern ["C++"] [{ body }] ]

**visit(NamespaceSpec\*)**

```
void visit(PTree::NamespaceSpec*);
```

[ namespace <identifier> [{ body }] ]

**visit(UsingDirective\*)**

```
void visit(PTree::UsingDirective*);
```

[ using namespace Foo ; ]

**visit(Declaration\*)**

```
void visit(PTree::Declaration*);
```

One of:

- Variables: [ [modifiers] name [declarators] ; ]
- Function: prototype: [ [modifiers] name [declarators] ; ]
- Typedef: ?
- Class definition: [ [modifiers] [class foo ...] [declarators]? ; ]

**visit(NamespaceAlias\*)**

```
void visit(PTree::NamespaceAlias*);
```

[ namespace Foo = Bar ; ]

**visit(FunctionDefinition\*)**

```
void visit(PTree::FunctionDefinition*);
```

Function definition: [ [modifiers] name declarator [ { ... } ] ]

**visit(ParameterDeclaration\*)**

```
void visit(PTree::ParameterDeclaration*);
```

One of:

- [ decl-specifier-seq ]
- [ decl-specifier-seq declarator ]
- [ decl-specifier-seq declarator = assignment-expression ]

- [ decl-specifier-seq abstract-declarator ]
- [ decl-specifier-seq abstract-declarator = assignment-expression ]
- [ decl-specifier-seq = assignment-expression ]

### **visit(UsingDeclaration\*)**

```
void visit(PTree::UsingDeclaration*);
```

[ using Foo :: x ; ]

### **visit(Declarator\*)**

```
void visit(PTree::Declarator*);
```

[ [ declarator { =<expr> } ] , ... ]

### **visit(Name\*)**

```
void visit(PTree::Name*);
```

### **visit(FstyleCastExpr\*)**

```
void visit(PTree::FstyleCastExpr*);
```

[ [type] ( [expr] ) ]

### **visit(ClassSpec\*)**

```
void visit(PTree::ClassSpec*);
```

### **visit(EnumSpec\*)**

```
void visit(PTree::EnumSpec*);
```

[ enum [name] [ { [name [= value] ]\* } ] ]

### **visit(TypeParameter\*)**

```
void visit(PTree::TypeParameter*);
```

One of:

- [typename]
- [typename identifier]
- [typename identifier = type-id]

### **visit(AccessSpec\*)**

```
void visit(PTree::AccessSpec*);
```

**visit(AccessDecl\*)**

```
void visit(PTree::AccessDecl*);
```

**visit(UserAccessSpec\*)**

```
void visit(PTree::UserAccessSpec*);
```

**visit(IfStatement\*)**

```
void visit(PTree::IfStatement*);
```

[ if ( expr ) statement (else statement)? ]

**visit(SwitchStatement\*)**

```
void visit(PTree::SwitchStatement*);
```

[ switch ( expr ) statement ]

**visit(WhileStatement\*)**

```
void visit(PTree::WhileStatement*);
```

[ while ( expr ) statement ]

**visit(DoStatement\*)**

```
void visit(PTree::DoStatement*);
```

[ do [{ ... }] while ( [...] ); ]

**visit(ForStatement\*)**

```
void visit(PTree::ForStatement*);
```

[ for ( stmt expr ; expr ) statement ]

**visit(TryStatement\*)**

```
void visit(PTree::TryStatement*);
```

[ try [{ }] [catch ( arg ) [{ }] ]\* ]

**visit(BreakStatement\*)**

```
void visit(PTree::BreakStatement*);
```

[ break ; ]

**visit(ContinueStatement\*)**

```
void visit(PTree::ContinueStatement*);
```

**visit(ReturnStatement\*)**

```
void visit(PTree::ReturnStatement*);
```

**visit(GotoStatement\*)**

```
void visit(PTree::GotoStatement*);
```

**visit(CaseStatement\*)**

```
void visit(PTree::CaseStatement*);
```

[ case expr : [expr] ]

**visit(DefaultStatement\*)**

```
void visit(PTree::DefaultStatement*);
```

[ default : [expr] ]

**visit(LabelStatement\*)**

```
void visit(PTree::LabelStatement*);
```

**visit(ExprStatement\*)**

```
void visit(PTree::ExprStatement*);
```

**visit(Expression\*)**

```
void visit(PTree::Expression*);
```

[ expr (, expr)\* ]

**visit(AssignExpr\*)**

```
void visit(PTree::AssignExpr*);
```

[left = right]

**visit(CondExpr\*)**

```
void visit(PTree::CondExpr*);
```

**visit(InfixExpr\*)**

```
void visit(PTree::InfixExpr*);
```

[left op right]

**visit(PmExpr\*)**

```
void visit(PTree::PmExpr*);
```

**visit(CastExpr\*)**

```
void visit(PTree::CastExpr*);
```

( type-expr ) expr ..type-expr is type encoded

**visit(UnaryExpr\*)**

```
void visit(PTree::UnaryExpr*);
```

[op expr]

**visit(ThrowExpr\*)**

```
void visit(PTree::ThrowExpr*);
```

[ throw [expr] ]

**visit(SizeofExpr\*)**

```
void visit(PTree::SizeofExpr*);
```

[ sizeof ( [type [???] ] ) ]

**visit(OffsetofExpr\*)**

```
void visit(PTree::OffsetofExpr*);
```

**visit(TypeidExpr\*)**

```
void visit(PTree::TypeidExpr*);
```

**visit(TypeofExpr\*)**

```
void visit(PTree::TypeofExpr*);
```

**visit(NewExpr\*)**

```
void visit(PTree::NewExpr*);
```

**visit(DeleteExpr\*)**

```
void visit(PTree::DeleteExpr*);
```

[ delete [expr] ]

**visit(ArrayExpr\*)**

```
void visit(PTree::ArrayExpr*);
```

<postfix> [ <expr> ]

**visit(FuncallExpr\*)**

```
void visit(PTree::FuncallExpr*);
```

[ postfix ( args ) ]

### **visit(PostfixExpr\*)**

```
void visit(PTree::PostfixExpr*);
```

[ expr ++ ]

### **visit(DotMemberExpr\*)**

```
void visit(PTree::DotMemberExpr*);
```

[ postfix . name ]

### **visit(ArrowMemberExpr\*)**

```
void visit(PTree::ArrowMemberExpr*);
```

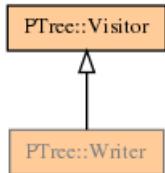
[ postfix -> name ]

### **visit(ParenExpr\*)**

```
void visit(PTree::ParenExpr*);
```

[ ( expr ) ]

## **class Writer**



### **Writer(std::ostream&)**

```
Writer(std::ostream& os);
```

### **write(const Node\*)**

```
unsigned long write(const PTree::Node*);
```

### **visit(Atom\*)**

```
void visit(PTree::Atom*);
```

### **visit(List\*)**

```
void visit(PTree::List*);
```

### **visit(Brace\*)**

```
void visit(PTree::Brace*);
```

**newline()**

```
void newline();
```

**my\_os**

```
std::ostream & my_os;
```

**my\_indent**

```
size_t my_indent;
```

**my\_lines**

```
unsigned long my_lines;
```

**nconc(N\*,Node\*)**

```
N * nconc(Synopsis::PTree::N* p, PTree::Node* q);
```

**snoc(N\*,Node\*)**

```
N * snoc(PTree::N* p, PTree::Node* q);
```

**display(const Node\*,std::ostream&,bool,bool)**

```
void display(const PTree::Node* node, std::ostream& os, bool encoded \
= false, bool typeinfo = false);
```

Display the given parse tree segment on the given output stream. If 'encoded' is set to 'true', print encoded names / types on appropriate nodes. If 'typeinfo' is set to 'true', print the class names of the nodes.

**generate\_dot\_file(const Node\*,std::ostream&)**

```
void generate_dot_file(const PTree::Node* node, std::ostream& os);
```

Generate a dot file for the given parse tree segment.

**operator<(const Encoding&,const Encoding&)**

```
bool operator<(const PTree::Encoding& e1, const PTree::Encoding& e2);
```

**operator<<(std::ostream&,const Encoding&)**

```
std::ostream & operator<<(std::ostream& os, const PTree::Encoding& e);
```

**operator==(const Node&,char)**

```
bool operator==(const PTree::Node& p, char c);
```

**operator!=(const Node&,char)**

```
bool operator!=(const PTree::Node& p, char c);
```

**operator==(const Node&,const char\*)**

```
bool operator==(const PTree::Node& p, const char* str);
```

**operator!=(const Node&,const char\*)**

```
bool operator!=(const PTree::Node& p, const char* str);
```

**operator==(const Node&,const Node&)**

```
bool operator==(const PTree::Node& p, const PTree::Node& q);
```

**operator!=(const Node&,const Node&)**

```
bool operator!=(const PTree::Node& p, const PTree::Node& q);
```

**equal(const Node&,const char\*,size\_t)**

```
bool equal(const PTree::Node& p, const char* str, size_t len);
```

**equal(const Node\*,const Node\*)**

```
bool equal(const PTree::Node* p, const PTree::Node* q);
```

**equiv(const Node\*,const Node\*)**

```
bool equiv(const PTree::Node* p, const PTree::Node* q);
```

**last(const Node\*)**

```
const PTree::Node * last(const PTree::Node*);
```

Return the last cons cell.

**last(Node\*)**

```
PTree::Node * last(PTree::Node*);
```

Return the last cons cell.

**first(const Node\*)**

```
const PTree::Node * first(const PTree::Node* p);
```

**first(Node\*)**

```
PTree::Node * first(PTree::Node* p);
```

**rest(const Node\*)**

```
const PTree::Node * rest(const PTree::Node* p);
```

**rest(Node\*)**

```
PTree::Node * rest(PTree::Node* p);
```

**nth(const Node\*,size\_t)**

```
const PTree::Node * nth(const PTree::Node* p, size_t n);
```

**nth(Node\*,size\_t)**

```
PTree::Node * nth(PTree::Node* p, size_t n);
```

**tail(const Node\*,size\_t)**

```
const PTree::Node * tail(const PTree::Node* p, size_t k);
```

**tail(Node\*,size\_t)**

```
PTree::Node * tail(PTree::Node* p, size_t k);
```

**second(const Node\*)**

```
const PTree::Node * second(const PTree::Node* );
```

**second(Node\*)**

```
PTree::Node * second(PTree::Node* );
```

**third(const Node\*)**

```
const PTree::Node * third(const PTree::Node* );
```

**third(Node\*)**

```
PTree::Node * third(PTree::Node* );
```

**length(const Node\*)**

```
int length(const PTree::Node* );
```

**cadr(const Node\*)**

```
const PTree::Node * cdr(const PTree::Node* p);
```

**cadr(Node\*)**

```
PTree::Node * cdr(PTree::Node* p);
```

**cddr(const Node\*)**

```
const PTree::Node * cddr(const PTree::Node* p);
```

**cddr(Node\*)**

```
PTree::Node * cddr(PTree::Node* p);
```

**ca\_ar(const Node\*)**

```
const PTree::Node * ca_ar(const PTree::Node*);
```

compute Caa..ar

**ca\_ar(Node\*)**

```
PTree::Node * ca_ar(PTree::Node*);
```

**cons(Node\*,Node\*)**

```
PTree::Node * cons(PTree::Node*, PTree::Node*);
```

**list()**

```
PTree::List * list();
```

**list(Node\*)**

```
PTree::List * list(PTree::Node*);
```

**list(Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*);
```

**list(Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*);
```

**list(Node\*,Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*);
```

**list(Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*);
```

**list(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*);
```

**list(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*);
```

**list(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::List * list(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*);
```

**copy(Node\*)**

```
PTree::Node * copy(PTree::Node*);
```

**append(Node\*,Node\*)**

```
PTree::Node * append(PTree::Node*, PTree::Node*);
```

**replace\_all(Node\*,Node\*,Node\*)**

```
PTree::Node * replace_all(PTree::Node*, PTree::Node*, PTree::Node*);
```

**subst(Node\*,Node\*,Node\*)**

```
PTree::Node * subst(PTree::Node*, PTree::Node*, PTree::Node*);
```

**subst(Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::Node * subst(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*);
```

**subst(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::Node * subst(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*);
```

**shallow\_subst(Node\*,Node\*,Node\*)**

```
PTree::Node * shallow_subst(PTree::Node*, PTree::Node*, PTree::Node*);
```

**shallow\_subst(Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::Node * shallow_subst(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*);
```

**shallow\_subst(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::Node * shallow_subst(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*);
```

**shal-****low\_subst(Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*,Node\*)**

```
PTree::Node * shallow_subst(PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*, PTree::Node*, \
PTree::Node*);
```

**subst\_sublist(Node\*,Node\*,Node\*)**

```
PTree::Node * subst_sublist(PTree::Node*, PTree::Node*, PTree::Node*);
```

**nconc(Node\*,Node\*)**

```
PTree::Node * nconc(PTree::Node*, PTree::Node*);
```

**nconc(Node\*,Node\*,Node\*)**

```
PTree::Node * nconc(PTree::Node*, PTree::Node*, PTree::Node*);
```

**snoc(Node\*,Node\*)**

```
PTree::Node * snoc(PTree::Node*, PTree::Node*);
```

**type\_of(const Node\*)**

```
Token::Type type_of(const PTree::Node* node);
```

**is\_a(const Node\*,Token::Type)**

```
bool is_a(const PTree::Node* node, Token::Type t);
```

**is\_a(const Node\*,Token::Type,Token::Type)**

```
bool is_a(const PTree::Node* node, Token::Type t1, Token::Type t2);
```

**is\_a(const Node\*,Token::Type,Token::Type,Token::Type)**

```
bool is_a(const PTree::Node* node, Token::Type t1, Token::Type t2, \
Token::Type t3);
```

**reify(const Node\*)**

```
std::string reify(const PTree::Node* p);
```

## Namespace PTree::Kwd

### Auto

```
typedef PTree::KeywordT<Token::AUTO> Auto;
```

### Bool

```
typedef PTree::KeywordT<Token::BOOLEAN> Bool;
```

### Break

```
typedef PTree::KeywordT<Token::BREAK> Break;
```

### Case

```
typedef PTree::KeywordT<Token::CASE> Case;
```

### Catch

```
typedef PTree::KeywordT<Token::CATCH> Catch;
```

### Char

```
typedef PTree::KeywordT<Token::CHAR> Char;
```

### Class

```
typedef PTree::KeywordT<Token::CLASS> Class;
```

### Continue

```
typedef PTree::KeywordT<Token::CONTINUE> Continue;
```

### Const

```
typedef PTree::KeywordT<Token::CONST> Const;
```

### Default

```
typedef PTree::KeywordT<Token::DEFAULT> Default;
```

### Delete

```
typedef PTree::KeywordT<Token::DELETE> Delete;
```

### Double

```
typedef PTree::KeywordT<Token::DOUBLE> Double;
```

## Do

```
typedef PTree::KeywordT<Token::DO> Do;
```

## Else

```
typedef PTree::KeywordT<Token::ELSE> Else;
```

## Enum

```
typedef PTree::KeywordT<Token::ENUM> Enum;
```

## Extern

```
typedef PTree::KeywordT<Token::EXTERN> Extern;
```

## Float

```
typedef PTree::KeywordT<Token::FLOAT> Float;
```

## For

```
typedef PTree::KeywordT<Token::FOR> For;
```

## Friend

```
typedef PTree::KeywordT<Token::FRIEND> Friend;
```

## Goto

```
typedef PTree::KeywordT<Token::GOTO> Goto;
```

## Inline

```
typedef PTree::KeywordT<Token::INLINE> Inline;
```

## If

```
typedef PTree::KeywordT<Token::IF> If;
```

## Int

```
typedef PTree::KeywordT<Token::INT> Int;
```

## Long

```
typedef PTree::KeywordT<Token::LONG> Long;
```

## Mutable

```
typedef PTree::KeywordT<Token::MUTABLE> Mutable;
```

## Namespace

```
typedef PTree::KeywordT<Token::NAMESPACE> Namespace;
```

## New

```
typedef PTree::KeywordT<Token::NEW> New;
```

## Operator

```
typedef PTree::KeywordT<Token::OPERATOR> Operator;
```

## Private

```
typedef PTree::KeywordT<Token::PRIVATE> Private;
```

## Protected

```
typedef PTree::KeywordT<Token::PROTECTED> Protected;
```

## Public

```
typedef PTree::KeywordT<Token::PUBLIC> Public;
```

## Register

```
typedef PTree::KeywordT<Token::REGISTER> Register;
```

## Return

```
typedef PTree::KeywordT<Token::RETURN> Return;
```

## Short

```
typedef PTree::KeywordT<Token::SHORT> Short;
```

## Signed

```
typedef PTree::KeywordT<Token::SIGNED> Signed;
```

## Static

```
typedef PTree::KeywordT<Token::STATIC> Static;
```

## Struct

```
typedef PTree::KeywordT<Token::STRUCT> Struct;
```

## Switch

```
typedef PTree::KeywordT<Token::SWITCH> Switch;
```

## Template

```
typedef PTree::KeywordT<Token::TEMPLATE> Template;
```

## This

```
typedef PTree::KeywordT<Token::THIS> This;
```

## Throw

```
typedef PTree::KeywordT<Token::THROW> Throw;
```

## Try

```
typedef PTree::KeywordT<Token::TRY> Try;
```

## Typedef

```
typedef PTree::KeywordT<Token::TYPEDEF> Typedef;
```

## Typename

```
typedef PTree::KeywordT<Token::TYPENAME> Typename;
```

## Typeof

```
typedef PTree::KeywordT<Token::TYPEOF> Typeof;
```

## Union

```
typedef PTree::KeywordT<Token::UNION> Union;
```

## Unsigned

```
typedef PTree::KeywordT<Token::UNSIGNED> Unsigned;
```

## Using

```
typedef PTree::KeywordT<Token::USING> Using;
```

## Virtual

```
typedef PTree::KeywordT<Token::VIRTUAL> Virtual;
```

## Void

```
typedef PTree::KeywordT<Token::VOID> Void;
```

## Volatile

```
typedef PTree::KeywordT<Token::VOLATILE> Volatile;
```

## WChar

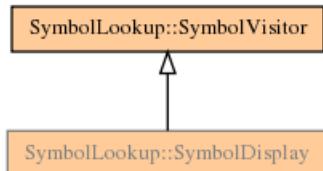
```
typedef PTree::KeywordT<Token::WCHAR> WChar;
```

## While

```
typedef PTree::KeywordT<Token::WHILE> While;
```

# Namespace SymbolLookup

## class SymbolDisplay



### SymbolDisplay(std::ostream&,size\_t)

```
SymbolDisplay(std::ostream& os, size_t indent);
```

### display(const PTree::Encoding&,const Symbol\*)

```
void display(const PTree::Encoding&, const SymbolLookup::Symbol*);
```

### prefix(const std::string&)

```
std::ostream & prefix(const std::string& type);
```

### visit(const Symbol\*)

```
void visit(const SymbolLookup::Symbol*);
```

### visit(const VariableName\*)

```
void visit(const SymbolLookup::VariableName*);
```

### visit(const ConstName\*)

```
void visit(const SymbolLookup::ConstName*);
```

### visit(const TypeName\*)

```
void visit(const SymbolLookup::TypeName*);
```

### visit(const TypedefName\*)

```
void visit(const SymbolLookup::TypedefName*);
```

**visit(const ClassName\*)**

```
void visit(const SymbolLookup::ClassName*);
```

**visit(const EnumName\*)**

```
void visit(const SymbolLookup::EnumName*);
```

**visit(const ClassTemplateName\*)**

```
void visit(const SymbolLookup::ClassTemplateName*);
```

**visit(const FunctionName\*)**

```
void visit(const SymbolLookup::FunctionName*);
```

**visit(const FunctionTemplateName\*)**

```
void visit(const SymbolLookup::FunctionTemplateName*);
```

**visit(const NamespaceName\*)**

```
void visit(const SymbolLookup::NamespaceName*);
```

**my\_os**

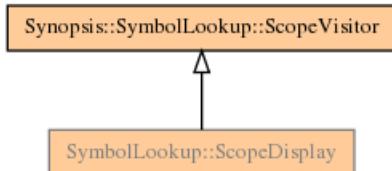
```
std::ostream & my_os;
```

**my\_indent**

```
std::string my_indent;
```

**my\_name**

```
std::string my_name;
```

**class ScopeDisplay**

The ScopeDisplay class provides an annotated view of the symbol table, for debugging purposes.

**ScopeDisplay(std::ostream&)**

```
ScopeDisplay(std::ostream& os);
```

**~ScopeDisplay()**

```
~ScopeDisplay();
```

**display(const Scope\*)**

```
void display(const SymbolLookup::Scope* s);
```

**visit(TemplateParameterScope\*)**

```
void visit(SymbolLookup::TemplateParameterScope* );
```

**visit(LocalScope\*)**

```
void visit(SymbolLookup::LocalScope* );
```

**visit(PrototypeScope\*)**

```
void visit(SymbolLookup::PrototypeScope* );
```

**visit(FunctionScope\*)**

```
void visit(SymbolLookup::FunctionScope* );
```

**visit(Class\*)**

```
void visit(SymbolLookup::Class* );
```

**visit(Namespace\*)**

```
void visit(SymbolLookup::Namespace* );
```

**dump(const Scope\*)**

```
void dump(const SymbolLookup::Scope* );
```

**indent()**

```
std::ostream & indent();
```

**my\_os**

```
std::ostream & my_os;
```

**my\_indent**

```
size_t my_indent;
```

**class InternalError**

```
SymbolLookup::InternalError
```

**InternalError(const std::string&)**

```
InternalError(const std::string& what);
```

**~InternalError()**

```
~InternalError();
```

**what()const**

```
const char * what();
```

**my\_what**

```
std::string my_what;
```

**class Scope**

A Scope contains symbol definitions.

**symbol\_iterator**

```
typedef SymbolTable::const_iterator symbol_iterator;
```

**scope\_iterator**

```
typedef ScopeTable::const_iterator scope_iterator;
```

**LookupContext**

```
typedef unsigned int LookupContext;
```

**Scope()**

```
Scope();
```

**ref()**

```
SymbolLookup::Scope * ref();
```

**ref()const**

```
const SymbolLookup::Scope * ref();
```

**unref()const**

```
void unref();
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**global\_scope()const**

```
const SymbolLookup::Scope * global_scope();
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**symbols\_begin()const**

```
SymbolLookup::Scope::symbol_iterator symbols_begin();
```

**symbols\_end()const**

```
SymbolLookup::Scope::symbol_iterator symbols_end();
```

**scopes\_begin()const**

```
SymbolLookup::Scope::scope_iterator scopes_begin();
```

**scopes\_end()const**

```
SymbolLookup::Scope::scope_iterator scopes_end();
```

**declare(const PTree::Encoding&,const Symbol\*)**

```
void declare(const PTree::Encoding& name, const SymbolLookup::Symbol* \symbol);
```

declare the given symbol in the local scope using the given encoded name.

**declare\_scope(const PTree::Node\*,Scope\*)**

```
void declare_scope(const PTree::Node* node, SymbolLookup::Scope* scope);
```

**use(const PTree::UsingDirective\*)**

```
void use(const PTree::UsingDirective*);
```

declare a 'using' directive. The default implementation raises an exception, as it is only well-formed when the current scope is a function scope or a namespace.

**find\_scope(const PTree::Node\*)const**

```
SymbolLookup::Scope * find_scope(const PTree::Node*);
```

find a nested scope by declaration

**find\_scope(const PTree::Encoding&,const Symbol\*)const**

```
SymbolLookup::Scope * find_scope(const PTree::Encoding&, const \SymbolLookup::Symbol*);
```

find a nested scope by symbol. The encoded name is provided for diagnostic purposes only.

**remove\_scope(const PTree::Node\*)**

```
void remove_scope(const PTree::Node*);
```

Remove the given nested scope from the scope.

### **find(const PTree::Encoding&,LookupContext)const**

```
SymbolLookup::SymbolSet find(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

find the encoded name declared in this scope and return a set of matching symbols.

### **remove(const Symbol\*)**

```
void remove(const SymbolLookup::Symbol* s);
```

Remove the given symbol from the scope. s shall not be used after its removal.

### **lookup(const PTree::Encoding&,LookupContext)const**

```
SymbolLookup::SymbolSet lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext = DEFAULT);
```

look up the encoded name and return a set of matching symbols.

### **unqualified\_lookup(const PTree::Encoding&,LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext = DEFAULT);
```

### **qualified\_lookup(const PTree::Encoding&,LookupContext)const**

```
SymbolLookup::SymbolSet qualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext = DEFAULT);
```

## **DEFAULT**

```
const SymbolLookup::Scope::LookupContext DEFAULT;
```

## **SCOPE**

```
const SymbolLookup::Scope::LookupContext SCOPE;
```

## **USING**

```
const SymbolLookup::Scope::LookupContext USING;
```

## **ELABORATE**

```
const SymbolLookup::Scope::LookupContext ELABORATE;
```

## **DECLARATION**

```
const SymbolLookup::Scope::LookupContext DECLARATION;
```

## SymbolTable

```
typedef std::multimap<PTree::Encoding, const SymbolLookup::Symbol *> \
SymbolTable;
```

## ScopeTable

```
typedef std::map<const PTree::Node *, SymbolLookup::Scope *> ScopeTable;
```

## ~Scope()

```
~Scope();
```

Scopes are ref counted, and thus are deleted only by 'unref()'

## my\_symbols

```
SymbolLookup::Scope::SymbolTable my_symbols;
```

## my\_scopes

```
SymbolLookup::Scope::ScopeTable my_scopes;
```

## myRefCount

```
size_t myRefCount;
```

## class ScopeVisitor

A Visitor for Scopes. The default implementation does nothing, so users only need to implement the ones they need.

## ~ScopeVisitor()

```
~ScopeVisitor();
```

## visit(TemplateParameterScope\*)

```
void visit(SymbolLookup::TemplateParameterScope*);
```

## visit(LocalScope\*)

```
void visit(SymbolLookup::LocalScope*);
```

## visit(PrototypeScope\*)

```
void visit(SymbolLookup::PrototypeScope*);
```

## visit(FunctionScope\*)

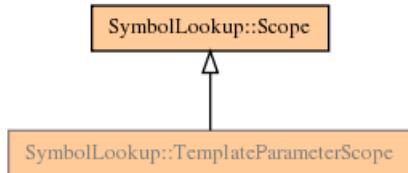
```
void visit(SymbolLookup::FunctionScope*);
```

**visit(Class\*)**

```
void visit(SymbolLookup::Class*);
```

**visit(Namespace\*)**

```
void visit(SymbolLookup::Namespace*);
```

**class TemplateParameterScope****TemplateParameterScope(const PTree::List\*,const Scope\*)**

```
TemplateParameterScope(const PTree::List* node, const \
SymbolLookup::Scope* outer);
```

**unqualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**~TemplateParameterScope()**

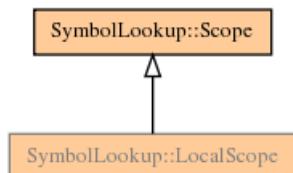
```
~TemplateParameterScope();
```

**my\_node**

```
const PTree::List * my_node;
```

**my\_outer**

```
const SymbolLookup::Scope * my_outer;
```

**class LocalScope**

**LocalScope(const PTree::List\*,const Scope\*)**

```
LocalScope(const PTree::List* node, const SymbolLookup::Scope* outer);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**unqualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**~LocalScope()**

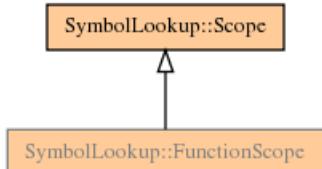
```
~LocalScope();
```

**my\_node**

```
const PTree::List * my_node;
```

**my\_outer**

```
const SymbolLookup::Scope * my_outer;
```

**class FunctionScope****FunctionScope(const PTree::Declaration\*,PrototypeScope\*,const Scope\*)**

```
FunctionScope(const PTree::Declaration*, SymbolLookup::PrototypeScope*, \
const SymbolLookup::Scope*);
```

**use(const PTree::UsingDirective\*)**

```
void use(const PTree::UsingDirective*);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**unqualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**qualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet qualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**name()const**

```
std::string name();
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**~FunctionScope()**

```
~FunctionScope();
```

**Using**

```
typedef std::set<const SymbolLookup::Namespace *> Using;
```

**my\_decl**

```
const PTree::Declaration * my_decl;
```

**my\_outer**

```
const SymbolLookup::Scope * my_outer;
```

**my\_class**

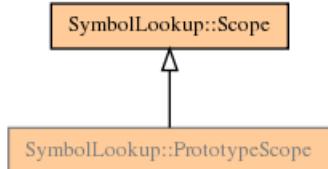
```
const SymbolLookup::Class * my_class;
```

**my\_parameters**

```
const SymbolLookup::TemplateParameterScope * my_parameters;
```

**my\_using**

```
SymbolLookup::FunctionScope::Using my_using;
```

**class PrototypeScope**

**PrototypeScope(const PTree::Node\*,const Scope\*,const TemplateParameterScope\*)**

```
PrototypeScope(const PTree::Node* decl, const SymbolLookup::Scope* \
outer, const SymbolLookup::TemplateParameterScope* params);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**unqualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**declaration()const**

```
const PTree::Node * declaration();
```

**parameters()const**

```
const SymbolLookup::TemplateParameterScope * parameters();
```

**name()const**

```
std::string name();
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**~PrototypeScope()**

```
~PrototypeScope();
```

---

**FunctionScope****my\_decl**

```
const PTree::Node * my_decl;
```

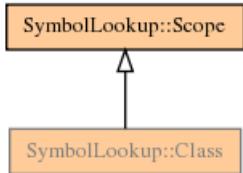
**my\_outer**

```
const SymbolLookup::Scope * my_outer;
```

**my\_parameters**

```
const SymbolLookup::TemplateParameterScope * my_parameters;
```

## class Class



### Bases

```
typedef std::vector<const SymbolLookup::Class *> Bases;
```

**Class(const PTree::ClassSpec\*, const Scope\*, const Bases&, const TemplateParameterScope\*)**

```
Class(const PTree::ClassSpec* spec, const SymbolLookup::Scope* outer, \
      const SymbolLookup::Class::Bases& bases, const \
      SymbolLookup::TemplateParameterScope* params);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**unqualified\_lookup(const PTree::Encoding&, Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
                                           SymbolLookup::Scope::LookupContext);
```

**name()const**

```
std::string name();
```

**accept(ScopeVisitor\*)**

```
void accept(SymbolLookup::ScopeVisitor* v);
```

**~Class()**

```
~Class();
```

**my\_spec**

```
const PTree::ClassSpec * my_spec;
```

**my\_outer**

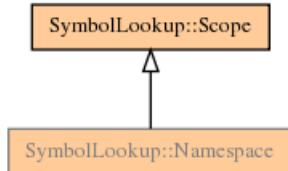
```
const SymbolLookup::Scope * my_outer;
```

**my\_bases**

```
SymbolLookup::Class::Bases my_bases;
```

**my\_parameters**

```
const SymbolLookup::TemplateParameterScope * my_parameters;
```

**class Namespace****Namespace(const PTree::NamespaceSpec\*,const Namespace\*)**

```
Namespace(const PTree::NamespaceSpec* spec, const \
SymbolLookup::Namespace* outer);
```

**find\_namespace(const PTree::NamespaceSpec\*)const**

```
SymbolLookup::Namespace * find_namespace(const PTree::NamespaceSpec* \
name);
```

Find a nested namespace.

**use(const PTree::UsingDirective\*)**

```
void use(const PTree::UsingDirective*);
```

**outer\_scope()const**

```
const SymbolLookup::Scope * outer_scope();
```

**unqualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**qualified\_lookup(const PTree::Encoding&,Scope::LookupContext)const**

```
SymbolLookup::SymbolSet qualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext);
```

**name()const**

```
std::string name();
```

**accept(Visitor\*)**

```
void accept(Visitor* v);
```

**~Namespace()**

```
~Namespace();
```

## Using

```
typedef std::set<const SymbolLookup::Namespace *> Using;
```

### unqualified\_lookup(const PTree::Encoding&, Scope::LookupContext, Using&)const

```
SymbolLookup::SymbolSet unqualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext, SymbolLookup::Namespace::Using&);
```

### qualified\_lookup(const PTree::Encoding&, Scope::LookupContext, Using&)const

```
SymbolLookup::SymbolSet qualified_lookup(const PTree::Encoding&, \
SymbolLookup::Scope::LookupContext, SymbolLookup::Namespace::Using&);
```

## my\_spec

```
const PTree::NamespaceSpec * my_spec;
```

## my\_outer

```
const SymbolLookup::Namespace * my_outer;
```

## my\_using

```
SymbolLookup::Namespace::Using my_using;
```

## class SymbolVisitor

### ~SymbolVisitor()

```
~SymbolVisitor();
```

### visit(const Symbol\*)

```
void visit(const SymbolLookup::Symbol*);
```

### visit(const VariableName\*)

```
void visit(const SymbolLookup::VariableName*);
```

### visit(const ConstName\*)

```
void visit(const SymbolLookup::ConstName*);
```

### visit(const TypeName\*)

```
void visit(const SymbolLookup::TypeName*);
```

### visit(const TypedefName\*)

```
void visit(const SymbolLookup::TypedefName*);
```

**visit(const ClassName\*)**

```
void visit(const SymbolLookup::ClassName*);
```

**visit(const EnumName\*)**

```
void visit(const SymbolLookup::EnumName*);
```

**visit(const ClassTemplateName\*)**

```
void visit(const SymbolLookup::ClassTemplateName*);
```

**visit(const FunctionName\*)**

```
void visit(const SymbolLookup::FunctionName*);
```

**visit(const FunctionTemplateName\*)**

```
void visit(const SymbolLookup::FunctionTemplateName*);
```

**visit(const NamespaceName\*)**

```
void visit(const SymbolLookup::NamespaceName*);
```

**class Symbol****Symbol(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
Symbol(const PTree::Encoding& t, const PTree::Node* p, bool def, \
SymbolLookup::Scope* s);
```

**~Symbol()**

```
~Symbol();
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**type()const**

```
const PTree::Encoding & type();
```

**ptree()const**

```
const PTree::Node * ptree();
```

**is\_definition()const**

```
bool is_definition();
```

**scope()const**

```
SymbolLookup::Scope * scope();
```

**my\_type**

```
PTree::Encoding my_type;
```

**my\_ptree**

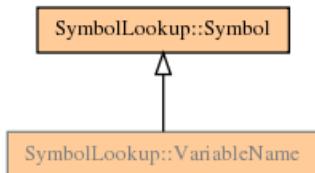
```
const PTree::Node * my_ptree;
```

**my\_definition**

```
bool my_definition;
```

**my\_scope**

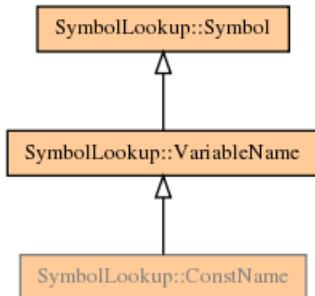
```
SymbolLookup::Scope * my_scope;
```

**class VariableName****VariableName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
VariableName(const PTree::Encoding& type, const PTree::Node* ptree, \
bool def, SymbolLookup::Scope* s);
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**class ConstName****ConstName(const PTree::Encoding&,long,const PTree::Node\*,bool,Scope\*)**

```
ConstName(const PTree::Encoding& type, long v, const PTree::Node* \
ptree, bool def, SymbolLookup::Scope* s);
```

**ConstName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
ConstName(const PTree::Encoding& type, const PTree::Node* ptree, bool \
def, SymbolLookup::Scope* s);
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**defined()const**

```
bool defined();
```

**value()const**

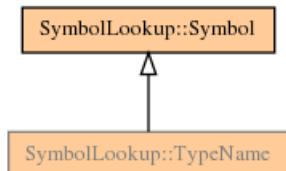
```
long value();
```

**my\_defined**

```
bool my_defined;
```

**my\_value**

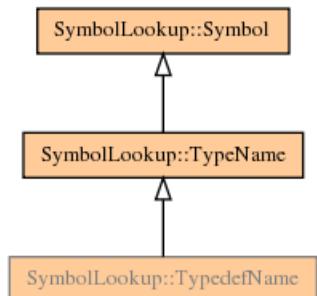
```
long my_value;
```

**class TypeName****TypeName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
TypeName(const PTree::Encoding& type, const PTree::Node* ptree, bool \
def, SymbolLookup::Scope* s);
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

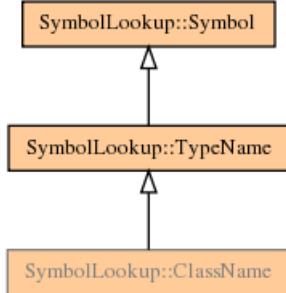
**class TypedefName**

**TypeDefName(const PTree::Encoding&,const PTree::Node\*,Scope\*)**

```
TypeDefName(const PTree::Encoding& type, const PTree::Node* ptree, \
SymbolLookup::Scope* scope);
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**class ClassName****ClassName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
ClassName(const PTree::Encoding& type, const PTree::Node* ptree, bool \
def, SymbolLookup::Scope* s);
```

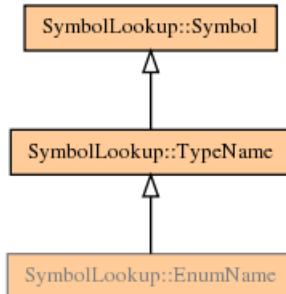
**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**as\_scope()const**

```
SymbolLookup::Class * as_scope();
```

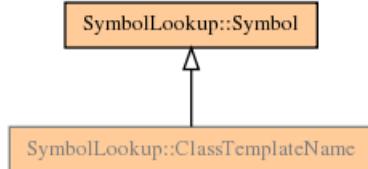
Return the class scope associated with this symbol. This will return 0 if the class definition hasn't been seen yet.

**class EnumName****EnumName(const PTree::Encoding&,const PTree::Node\*,Scope\*)**

```
EnumName(const PTree::Encoding& type, const PTree::Node* ptree, \
SymbolLookup::Scope* scope);
```

**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**class ClassTemplateName****ClassTemplateName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
ClassTemplateName(const PTree::Encoding& type, const PTree::Node* \ 
ptree, bool def, SymbolLookup::Scope* s);
```

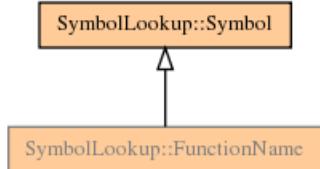
**accept(SymbolVisitor\*)const**

```
void accept(SymbolLookup::SymbolVisitor* v);
```

**as\_scope()const**

```
SymbolLookup::Class * as_scope();
```

Return the class scope associated with this symbol. This will return 0 if the class definition hasn't been seen yet.

**class FunctionName****FunctionName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)**

```
FunctionName(const PTree::Encoding& type, const PTree::Node* ptree, \
bool def, SymbolLookup::Scope* s);
```

**accept(SymbolVisitor\*)const**

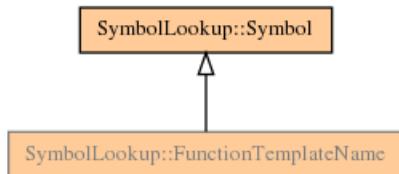
```
void accept(SymbolLookup::SymbolVisitor* v);
```

**as\_scope()const**

```
SymbolLookup::FunctionScope * as_scope();
```

Return the function scope associated with this symbol. This will return 0 if the function definition hasn't been seen yet.

## class FunctionTemplateName



### FunctionTemplateName(const PTree::Encoding&,const PTree::Node\*,Scope\*)

```
FunctionTemplateName(const PTree::Encoding& type, const PTree::Node* \
ptree, SymbolLookup::Scope* s);
```

#### accept(SymbolVisitor\*)const

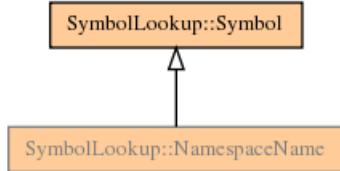
```
void accept(SymbolLookup::SymbolVisitor* v);
```

#### as\_scope()const

```
SymbolLookup::FunctionScope * as_scope();
```

Return the function scope associated with this symbol. This will return 0 if the function definition hasn't been seen yet.

## class NamespaceName



### NamespaceName(const PTree::Encoding&,const PTree::Node\*,bool,Scope\*)

```
NamespaceName(const PTree::Encoding& type, const PTree::Node* ptree, \
bool def, SymbolLookup::Scope* s);
```

#### accept(SymbolVisitor\*)const

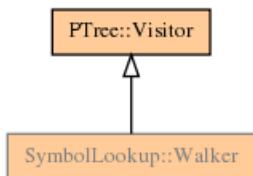
```
void accept(SymbolLookup::SymbolVisitor* v);
```

#### as\_scope()const

```
SymbolLookup::Namespace * as_scope();
```

Return the namespace scope associated with this symbol. This will return 0 if the namespace definition hasn't been seen yet.

## class Walker



This Walker adjusts the symbol lookup table while the parse tree is being traversed such that symbols in the parse tree can be looked up correctly in the right context.

### **Walker(Scope\*)**

```
Walker(SymbolLookup::Scope*);
```

### **~Walker()**

```
~Walker();
```

### **visit(PTree::List\*)**

```
void visit(PTree::List*);
```

### **visit(PTree::Block\*)**

```
void visit(PTree::Block*);
```

### **visit(PTree::TemplateDecl\*)**

```
void visit(PTree::TemplateDecl*);
```

### **visit(PTree::NamespaceSpec\*)**

```
void visit(PTree::NamespaceSpec*);
```

### **visit(PTree::FunctionDefinition\*)**

```
void visit(PTree::FunctionDefinition*);
```

### **visit(PTree::ClassSpec\*)**

```
void visit(PTree::ClassSpec*);
```

### **visit(PTree::DotMemberExpr\*)**

```
void visit(PTree::DotMemberExpr*);
```

### **visit(PTree::ArrowMemberExpr\*)**

```
void visit(PTree::ArrowMemberExpr*);
```

### **traverse\_body(PTree::NamespaceSpec\*)**

```
void traverse_body(PTree::NamespaceSpec*);
```

Traverse the body of a namespace definition.

### **traverse\_body(PTree::ClassSpec\*)**

```
void traverse_body(PTree::ClassSpec*);
```

Traverse the body of the class definition.

### **traverse\_parameters(PTree::TemplateDecl\*)**

```
void traverse_parameters(PTree::TemplateDecl*);
```

Traverse the template parameter list of a template declaration.

### **traverse\_body(PTree::FunctionDefinition\*)**

```
void traverse_body(PTree::FunctionDefinition*);
```

Traverse the body of the function definition.

### **current\_scope()**

```
const SymbolLookup::Scope * current_scope();
```

### **leave\_scope()**

```
void leave_scope();
```

## **Scopes**

```
typedef std::stack<SymbolLookup::Scope *> Scopes;
```

### **visit\_block(PTree::Block\*)**

```
void visit_block(PTree::Block*);
```

the virtual visit(Block) version above does scoping, which isn't what we want if traversing a function  
(FIXME: or is it ?) so the following factors out the common code.

### **my\_scopes**

```
SymbolLookup::Walker::Scopes my_scopes;
```

The symbol lookup table.

## **SymbolSet**

```
typedef std::set<const SymbolLookup::Symbol *> SymbolSet;
```

### **struct TypeError**

```
SymbolLookup::TypeError
```

**TypeError(const PTree::Encoding&,const PTree::Encoding&)**

```
TypeError(const PTree::Encoding& n, const PTree::Encoding& t);
```

**~TypeError()**

```
~TypeError();
```

**what()const**

```
const char * what();
```

**name**

```
PTree::Encoding name;
```

**type**

```
PTree::Encoding type;
```

**struct Undefined**

```
SymbolLookup::Undefined
```

**Undefined(const PTree::Encoding&,const PTree::Node\*)**

```
Undefined(const PTree::Encoding& n, const PTree::Node* ref = 0);
```

**~Undefined()**

```
~Undefined();
```

**what()const**

```
const char * what();
```

**name**

```
PTree::Encoding name;
```

**ptree**

```
const PTree::Node * ptree;
```

**struct MultiplyDefined**

```
SymbolLookup::MultiplyDefined
```

**MultiplyDefined(const PTree::Encoding&,const PTree::Node\*,const PTree::Node\*)**

```
MultiplyDefined(const PTree::Encoding& n, const PTree::Node* decl, \
const PTree::Node* orig);
```

**~MultiplyDefined()**

```
~MultiplyDefined();
```

**what()const**

```
const char * what();
```

**name**

```
PTree::Encoding name;
```

**declaration**

```
const PTree::Node * declaration;
```

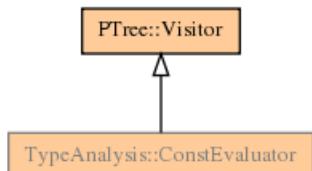
**original**

```
const PTree::Node * original;
```

**display(const Scope\*,std::ostream&)**

```
void display(const SymbolLookup::Scope* s, std::ostream& os);
```

## Namespace TypeAnalysis

**class ConstEvaluator**

Evaluate the value of a constant expression.

**ConstEvaluator(const SymbolLookup::Scope\*)**

```
ConstEvaluator(const SymbolLookup::Scope* s);
```

**evaluate(const PTree::Node\*,long&)**

```
bool evaluate(const PTree::Node* node, long& value);
```

**visit(PTree::Literal\*)**

```
void visit(PTree::Literal*);
```

**visit(PTree::Identifier\*)**

```
void visit(PTree::Identifier*);
```

**visit(PTree::FstyleCastExpr\*)**

```
void visit(PTree::FstyleCastExpr*);
```

**visit(PTree::InfixExpr\*)**

```
void visit(PTree::InfixExpr*);
```

**visit(PTree::SizeofExpr\*)**

```
void visit(PTree::SizeofExpr*);
```

**visit(PTree::UnaryExpr\*)**

```
void visit(PTree::UnaryExpr*);
```

**visit(PTree::CondExpr\*)**

```
void visit(PTree::CondExpr*);
```

**visit(PTree::ParenExpr\*)**

```
void visit(PTree::ParenExpr*);
```

**my\_valid**

```
bool my_valid;
```

**my\_value**

```
long my_value;
```

**my\_scope**

```
const SymbolLookup::Scope * my_scope;
```

**class Kit**

creates and remembers declared types.

**Kit()**

```
Kit();
```

**builtin(const std::string&)**

```
const TypeAnalysis::Type * builtin(const std::string& name);
```

**enum\_(const std::string&)**

```
const TypeAnalysis::Type * enum_(const std::string& name);
```

**class\_(const std::string&)**

```
const TypeAnalysis::Type * class_(const std::string& name);
```

**union\_(const std::string&)**

```
const TypeAnalysis::Type * union_(const std::string& name);
```

**pointer(const Type\*)**

```
const TypeAnalysis::Type * pointer(const TypeAnalysis::Type* type);
```

**reference(const Type\*)**

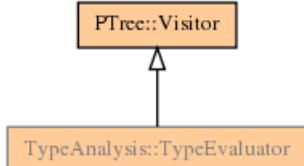
```
const TypeAnalysis::Type * reference(const TypeAnalysis::Type* type);
```

**array(const Type\*)**

```
const TypeAnalysis::Type * array(const TypeAnalysis::Type* type);
```

**pointer\_to\_member(const Type\*,const Type\*)**

```
const TypeAnalysis::Type * pointer_to_member(const TypeAnalysis::Type* container, const TypeAnalysis::Type* member);
```

**class TypeEvaluator**

evaluate the type of an expression

**TypeEvaluator(const SymbolLookup::Scope\*)**

```
TypeEvaluator(const SymbolLookup::Scope* s);
```

**evaluate(const PTree::Node\*)**

```
const TypeAnalysis::Type * evaluate(const PTree::Node* node);
```

**visit(PTree::Literal\*)**

```
void visit(PTree::Literal*);
```

**visit(PTree::Identifier\*)**

```
void visit(PTree::Identifier*);
```

**visit(PTree::Kwd::This\*)**

```
void visit(PTree::Kwd::This*);
```

### **visit(PTree::Name\*)**

```
void visit(PTree::Name*);
```

### **visit(PTree::FstyleCastExpr\*)**

```
void visit(PTree::FstyleCastExpr*);
```

### **visit(PTree::AssignExpr\*)**

```
void visit(PTree::AssignExpr*);
```

### **visit(PTree::CondExpr\*)**

```
void visit(PTree::CondExpr*);
```

### **visit(PTree::InfixExpr\*)**

```
void visit(PTree::InfixExpr*);
```

### **visit(PTree::PmExpr\*)**

```
void visit(PTree::PmExpr*);
```

### **visit(PTree::CastExpr\*)**

```
void visit(PTree::CastExpr*);
```

### **visit(PTree::UnaryExpr\*)**

```
void visit(PTree::UnaryExpr*);
```

### **visit(PTree::ThrowExpr\*)**

```
void visit(PTree::ThrowExpr*);
```

### **visit(PTree::SizeofExpr\*)**

```
void visit(PTree::SizeofExpr*);
```

### **visit(PTree::TypeidExpr\*)**

```
void visit(PTree::TypeidExpr*);
```

### **visit(PTree::TypeofExpr\*)**

```
void visit(PTree::TypeofExpr*);
```

### **visit(PTree::NewExpr\*)**

```
void visit(PTree::NewExpr*);
```

**visit(PTree::DeleteExpr\*)**

```
void visit(PTree::DeleteExpr*);
```

**visit(PTree::ArrayExpr\*)**

```
void visit(PTree::ArrayExpr*);
```

**visit(PTree::FuncallExpr\*)**

```
void visit(PTree::FuncallExpr*);
```

**visit(PTree::PostfixExpr\*)**

```
void visit(PTree::PostfixExpr*);
```

**visit(PTree::DotMemberExpr\*)**

```
void visit(PTree::DotMemberExpr*);
```

**visit(PTree::ArrowMemberExpr\*)**

```
void visit(PTree::ArrowMemberExpr*);
```

**visit(PTree::ParenExpr\*)**

```
void visit(PTree::ParenExpr*);
```

**my\_scope**

```
const SymbolLookup::Scope * my_scope;
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**class Type****Type(const std::string&)**

```
Type(const std::string& name);
```

**~Type()**

```
~Type();
```

**name()const**

```
const std::string & name();
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**ref()const**

```
void ref();
```

**deref()const**

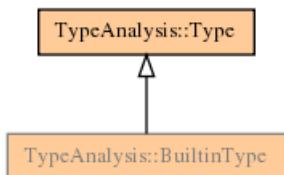
```
void deref();
```

**my\_name**

```
const std::string my_name;
```

**my\_refcounter**

```
size_t my_refcounter;
```

**class BuiltinType****BuiltinType(const std::string&)**

```
BuiltinType(const std::string& name);
```

**accept(Visitor\*)**

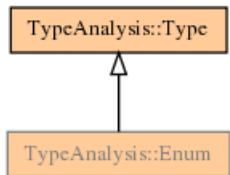
```
void accept(TypeAnalysis::Visitor* visitor);
```

**ref()const**

```
void ref();
```

**deref()const**

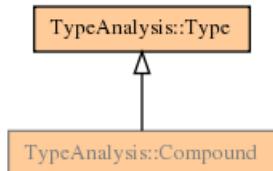
```
void deref();
```

**class Enum****Enum(const std::string&)**

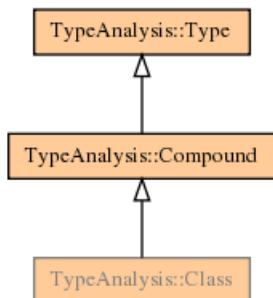
```
Enum(const std::string& name);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**class Compound****Compound(const std::string&)**

```
Compound(const std::string& name);
```

**class Class****Kind**

```
enum Kind { STRUCT, CLASS };
```

**Class(Kind,const std::string&)**

```
Class(TypeAnalysis::Class::Kind kind, const std::string& name);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_kind**

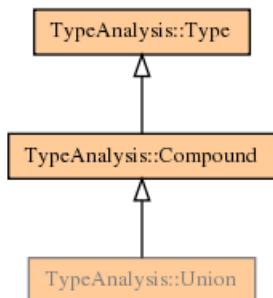
```
TypeAnalysis::Class::Kind my_kind;
```

**STRUCT**

---

**CLASS**

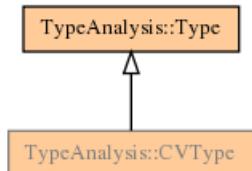
---

**class Union****Union(const std::string&)**

```
Union(const std::string& name);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**class CVType****CVQualifier**

```
enum CVQualifier { NONE=0x0, CONST=0x1, VOLATILE=0x2};
```

**CVType(const Type\*,CVQualifier)**

```
CVType(const TypeAnalysis::Type* type, \
TypeAnalysis::CVType::CVQualifier q);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**names**

```
[4] const std::string names;
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**my\_qual**

```
TypeAnalysis::CVType::CVQualifier my_qual;
```

**NONE**

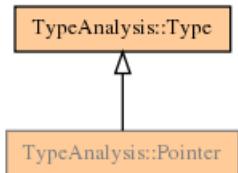
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**CONST**

---

**VOLATILE**

---

**class Pointer****Pointer(const Type\*)**

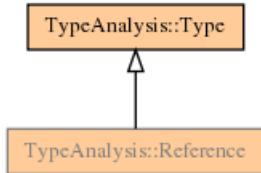
```
Pointer(const TypeAnalysis::Type* type);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**class Reference****Reference(const Type\*)**

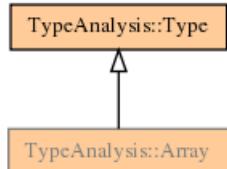
```
Reference(const TypeAnalysis::Type* type);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**class Array****Array(const Type\*)**

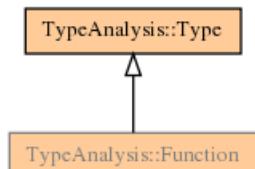
```
Array(const TypeAnalysis::Type* type);
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**class Function****Function()**

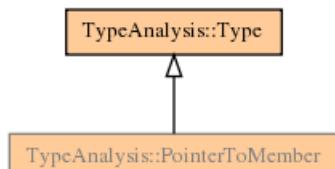
```
Function();
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_type**

```
const TypeAnalysis::Type * my_type;
```

**class PointerToMember**

**PointerToMember()**

```
PointerToMember();
```

**accept(Visitor\*)**

```
void accept(TypeAnalysis::Visitor* visitor);
```

**my\_container**

```
const TypeAnalysis::Type * my_container;
```

**my\_member**

```
const TypeAnalysis::Type * my_member;
```

**class Visitor****~Visitor()**

```
~Visitor();
```

**visit(Type\*)**

```
void visit(TypeAnalysis::Type*);
```

**visit(BuiltinType\*)**

```
void visit(TypeAnalysis::BuiltinType*);
```

**visit(Enum\*)**

```
void visit(TypeAnalysis::Enum*);
```

**visit(Class\*)**

```
void visit(TypeAnalysis::Class*);
```

**visit(Union\*)**

```
void visit(TypeAnalysis::Union*);
```

**visit(CVType\*)**

```
void visit(TypeAnalysis::CVType*);
```

**visit(Pointer\*)**

```
void visit(TypeAnalysis::Pointer*);
```

**visit(Reference\*)**

```
void visit(TypeAnalysis::Reference*);
```

**visit(Array\*)**

```
void visit(TypeAnalysis::Array*);
```

**visit(Function\*)**

```
void visit(TypeAnalysis::Function*);
```

**visit(PointerToMember\*)**

```
void visit(TypeAnalysis::PointerToMember*);
```

**evaluate\_const(const SymbolLookup::Scope\*,const PTree::Node\*,long&)**

```
bool evaluate_const(const SymbolLookup::Scope* scope, const PTree::Node* node, long& value);
```

Evaluate the value of a constant expression. TODO: This may also return the type of the expression...

**resolve\_funcall(const PTree::FuncallExpr\*,const SymbolLookup::Scope\*)**

```
const SymbolLookup::Symbol * resolve_funcall(const PTree::FuncallExpr* funcall, const SymbolLookup::Scope*);
```

Resolve a function call in the context of the given scope.

**type\_of(const PTree::Node\*,const SymbolLookup::Scope\*)**

```
const TypeAnalysis::Type * type_of(const PTree::Node* node, const SymbolLookup::Scope* s);
```

**BOOL**

```
TypeAnalysis::BuiltinType BOOL;
```

**CHAR**

```
TypeAnalysis::BuiltinType CHAR;
```

**WCHAR**

```
TypeAnalysis::BuiltinType WCHAR;
```

**SHORT**

```
TypeAnalysis::BuiltinType SHORT;
```

## INT

```
TypeAnalysis::BuiltinType INT;
```

## LONG

```
TypeAnalysis::BuiltinType LONG;
```

## FLOAT

```
TypeAnalysis::BuiltinType FLOAT;
```

## DOUBLE

```
TypeAnalysis::BuiltinType DOUBLE;
```

## UCHAR

```
TypeAnalysis::BuiltinType UCHAR;
```

## USHORT

```
TypeAnalysis::BuiltinType USHORT;
```

## UINT

```
TypeAnalysis::BuiltinType UINT;
```

## ULONG

```
TypeAnalysis::BuiltinType ULONG;
```

## SCHAR

```
TypeAnalysis::BuiltinType SCHAR;
```

## SSHORT

```
TypeAnalysis::BuiltinType SSHORT;
```

## SINT

```
TypeAnalysis::BuiltinType SINT;
```

## SLONG

```
TypeAnalysis::BuiltinType SLONG;
```

## class Buffer

Buffer holds the memory on top of which a parse tree / syntax tree is constructed. Besides giving access to individual characters, it provides the means to register replacements for buffer chunks, such that when the Buffer's write method is executed the new file will contain the modified source.

### Buffer(std::streambuf\*,const std::string&)

```
Buffer(std::streambuf*, const std::string& = std :: string ( "unknown" \ )) ;
```

#### size()const

```
unsigned long size();
```

return the size of the buffer

#### get()

```
char get();
```

report the character at the current position and advance one character

#### unget()

```
void unget();
```

undo the last get

#### reset(unsigned long)

```
void reset(unsigned long c = 0);
```

reset the current position to position c

#### position()const

```
unsigned long position();
```

report the current position

#### at(unsigned long)const

```
char at(unsigned long p);
```

report the character at position p

#### ptr(unsigned long)const

```
const char * ptr(unsigned long p = 0);
```

report the pointer at position p

## replace(const char\*,const char\*,const char\*,unsigned long)

```
void replace(const char* from, const char* to, const char* begin, \
unsigned long length);
```

replace the text between from and to by the text between begin and begin + length

## origin(const char\*,std::string&)const

```
unsigned long origin(const char*, std::string&);
```

Return the origin of the given pointer (filename and line number)

## write(std::ostream&,const std::string&)const

```
void write(std::ostream&, const std::string&);
```

Write the buffer into the given output stream. The first line contains a line directive issuing the input file name; if filename is non-empty, use this to fake another one.

## Replacements

```
typedef std::vector<Buffer::Replacement> Replacements;
```

## struct Replacement

### Replacement(const char\*,const char\*,const char\*,unsigned long)

```
Replacement(const char* from, const char* to, const char* begin, \
unsigned long length);
```

### smaller(const Replacement&,const Replacement&)

```
bool smaller(const Buffer::Replacement& r1, const Buffer::Replacement& \
r2);
```

**from**

```
const char * from;
```

**to**

```
const char * to;
```

**begin**

```
const char * begin;
```

**length**

```
unsigned long length;
```

## **read\_line\_directive(unsigned long,long,unsigned long&,unsigned long&)const**

```
long read_line_directive(unsigned long cursor, long line, unsigned \
long& begin, unsigned long& end);
```

read a line directive starting at position pos, and return the line number found. Also report the begin and end of the filename (with respect to the internal buffer). line is the default line number that gets reported on error (in which case begin and end remain unchanged)

## **my\_filename**

```
std::string my_filename;
```

## **my\_buffer**

```
std::string my_buffer;
```

## **my\_cursor**

```
unsigned long my_cursor;
```

## **my\_replacements**

```
Buffer::Replacements my_replacements;
```

# **class Lexer**

a Lexer reads tokens from a stream.

## **Comments**

```
typedef std::vector<Token> Comments;
```

## **struct InvalidChar**

```
Lexer::InvalidChar
```

## **InvalidChar(const std::string&)**

```
InvalidChar(const std::string& msg);
```

## **TokenSet**

```
enum TokenSet { C=0x0, CXX=0x01, GCC=0x02, MSVC=0x04};
```

Define sets of token that are to be recognized as special keywords (as opposed to identifiers). They can be or'ed. If CXX is not specified, the Lexer will operate in 'C mode'.

## **Lexer(Buffer\*,int)**

```
Lexer(Buffer*, int tokenset = CXX | GCC);
```

Construct a Lexer on the given Buffer using the given token set. The default token set is CXX with GCC extensions.

### **get\_token(Token&)**

```
Token::Type get_token(Token&);
```

### **look\_ahead(size\_t)**

```
Token::Type look_ahead(size_t);
```

### **look\_ahead(size\_t,Token&)**

```
Token::Type look_ahead(size_t, Token&);
```

### **save()**

```
const char * save();
```

### **restore(const char\*)**

```
void restore(const char*);
```

### **get\_comments()**

```
Lexer::Comments get_comments();
```

### **origin(const char\*,std::string&)const**

```
unsigned long origin(const char*, std::string&);
```

Return the origin of the given pointer (filename and line number)

## **class Queue**

a Queue is used to read in tokens from a stream without consuming them

### **Container**

```
typedef std::deque<Token> Container;
```

### **size\_type**

```
typedef Container::size_type size_type;
```

### **empty()const**

```
bool empty();
```

**size()const**

```
Lexer::Queue::size_type size();
```

**front()const**

```
const Token & front();
```

**back()const**

```
const Token & back();
```

**at(size\_type)const**

```
const Token & at(Lexer::Queue::size_type i);
```

**push(const Token&)**

```
void push(const Token& t);
```

**pop()**

```
void pop();
```

**clear()**

```
void clear();
```

**my\_container**

```
Lexer::Queue::Container my_container;
```

**Dictionary**

```
typedef std::map<std::string, Token::Type> Dictionary;
```

**rewind(const char\*)**

```
void rewind(const char*);
```

**read\_token(const char\*&,size\_t&)**

```
Token::Type read_token(const char*&, size_t&);
```

**fill(size\_t)**

```
bool fill(size_t o);
```

try to fill the token cache to contain at least o tokens. Returns false if there are not enough tokens.

**skip\_paren()**

```
void skip_paren();
```

skip till end of paren

## **skip\_line()**

```
void skip_line();
```

skip till end of line

## **skip\_attribute()**

```
void skip_attribute();
```

skip \_\_attribute\_\_(...), \_\_asm\_\_(...), ...

## **skip\_extension(const char\*&,size\_t&)**

```
Token::Type skip_extension(const char*&, size_t&);
```

skip \_\_extension\_\_(...).

## **skip\_asm()**

```
void skip_asm();
```

skip \_\_asm ...

## **skip\_declspec()**

```
void skip_declspec();
```

skip \_\_declspec(...).

## **skip\_pragma()**

```
void skip_pragma();
```

skip \_\_pragma(...);

## **get\_next\_non\_white\_char()**

```
char get_next_non_white_char();
```

## **read\_line()**

```
Token::Type read_line();
```

## **read\_char\_const(unsigned long)**

```
bool read_char_const(unsigned long top);
```

## **read\_str\_const(unsigned long)**

```
bool read_str_const(unsigned long top);
```

**read\_number(char,unsigned long)**

```
Token::Type read_number(char c, unsigned long top);
```

**read\_float(unsigned long)**

```
Token::Type read_float(unsigned long top);
```

**read\_identifier(unsigned long)**

```
Token::Type read_identifier(unsigned long top);
```

**screen(const char\*,size\_t)**

```
Token::Type screen(const char* identifier, size_t len);
```

**read\_separator(char,unsigned long)**

```
Token::Type read_separator(char c, unsigned long top);
```

**single\_char\_op(unsigned char)**

```
Token::Type single_char_op(unsigned char c);
```

**read\_comment(char,unsigned long)**

```
Token::Type read_comment(char c, unsigned long top);
```

**my\_buffer**

```
Buffer * my_buffer;
```

**my\_tokens**

```
Lexer::Queue my_tokens;
```

**my\_keywords**

```
Lexer::Dictionary my_keywords;
```

**my\_token**

```
Token my_token;
```

**my\_comments**

```
Lexer::Comments my_comments;
```

**C**

---

**CXX**

---

**GCC**

---

**MSVC**

---

## class Parser

C++ Parser

This parser is a LL(k) parser with ad hoc rules such as backtracking.

<name>() is the grammer rule for a non-terminal <name>. opt\_<name>() is the grammer rule for an optional non-terminal <name>. is\_<name>() looks ahead and returns true if the next symbol is <name>.

## class Error

Error is used to cache parse errors encountered during the execution of the parse method.

### **~Error()**

```
~Error();
```

### **write(std::ostream&)const**

```
void write(std::ostream&);
```

## ErrorList

```
typedef std::vector< Parser::Error *> ErrorList;
```

## RuleSet

```
enum RuleSet { CXX=0x01, GCC=0x02, MSVC=0x04 };
```

RuleSet defines non-standard optional rules that can be chosen at runtime.

## Parser(Lexer&,SymbolFactory&,int)

```
Parser(Lexer& lexer, SymbolFactory& symbols, int ruleset = CXX | GCC);
```

### **~Parser()**

```
~Parser();
```

**errors()const**

```
const Parser::ErrorList & errors();
```

**origin(const char\*,std::string&)const**

```
unsigned long origin(const char*, std::string&);
```

Return the origin of the given pointer (filename and line number)

**parse()**

```
PTree::Node * parse();
```

**class StatusGuard**

A StatusGuard manages a tentative parse. All actions invoked after its instantiation will be rolled back in the destructor unless 'commit' has been called before.

**StatusGuard(Parser&)**

```
StatusGuard(Parser&);
```

**~StatusGuard()**

```
~StatusGuard();
```

**commit()**

```
void commit();
```

**my\_lexer**

```
Lexer & my_lexer;
```

**my\_token\_mark**

```
const char * my_token_mark;
```

**my\_errors**

```
Parser::ErrorList my_errors;
```

**my\_error\_mark**

```
Parser::ErrorList::size_type my_error_mark;
```

**my\_committed**

```
bool my_committed;
```

## ScopeGuard

---

### DeclKind

```
enum DeclKind { kDeclarator, kArgDeclarator, kCastDeclarator};
```

### TemplateDeclKind

```
enum TemplateDeclKind { tdk_unknown, tdk_decl, tdk_instantiation, \
tdk_specialization, num_tdk};
```

### declare(T\*)

```
bool declare(Parser::T*);
```

### mark\_error()

```
bool mark_error();
```

### show\_message\_head(const char\*)

```
void show_message_head(const char*);
```

### definition(PTree::Node\*&)

```
bool definition(PTree::Node*&);
```

### null\_declaration(PTree::Node\*&)

```
bool null_declaration(PTree::Node*&);
```

### typedef\_(PTree::Typedef\*&)

```
bool typedef_(PTree::Typedef*&);
```

### typeSpecifier(PTree::Node\*&, bool, PTree::Encoding&)

```
bool typeSpecifier(PTree::Node*&, bool, PTree::Encoding&);
```

### is\_typeSpecifier()

```
bool is_typeSpecifier();
```

### metaClassDecl(PTree::Node\*&)

```
bool metaClassDecl(PTree::Node*&);
```

### metaArguments(PTree::Node\*&)

```
bool metaArguments(PTree::Node*&);
```

**linkage\_spec(PTree::Node\*&)**

```
bool linkage_spec(PTree::Node*&);
```

**namespace\_spec(PTree::NamespaceSpec\*&)**

```
bool namespace_spec(PTree::NamespaceSpec*&);
```

**namespace\_alias(PTree::NamespaceAlias\*&)**

```
bool namespace_alias(PTree::NamespaceAlias*&);
```

**using\_directive(PTree::UsingDirective\*&)**

```
bool using_directive(PTree::UsingDirective*&);
```

**using\_declaration(PTree::UsingDeclaration\*&)**

```
bool using_declaration(PTree::UsingDeclaration*&);
```

**linkage\_body(PTree::Node\*&)**

```
bool linkage_body(PTree::Node*&);
```

**template\_decl(PTree::Node\*&)**

```
bool template_decl(PTree::Node*&);
```

**template\_decl2(PTree::TemplateDecl\*&, TemplateDeclKind&)**

```
bool template_decl2(PTree::TemplateDecl*&, Parser::TemplateDeclKind& \ kind);
```

**template\_parameter\_list(PTree::List\*&)**

```
bool template_parameter_list(PTree::List*&);
```

template-parameter-list:

- template-parameter
- template-parameter-list , template-parameter

**template\_parameter(PTree::Node\*&)**

```
bool template_parameter(PTree::Node*&);
```

template-parameter:

- type-parameter
- parameter-declaration

## **type\_parameter(PTree::Node\*&)**

```
bool type_parameter(PTree::Node*&);
```

type-parameter:

- class identifier [opt]
- class identifier [opt] = type-id
- typename identifier [opt]
- typename identifier [opt] = type-id
- template < template-parameter-list > class identifier [opt]
- template < template-parameter-list > class identifier [opt] = id-expression

## **extern\_template\_decl(PTree::Node\*&)**

```
bool extern_template_decl(PTree::Node*&);
```

GNU extension: extern-template-decl:

- extern template declaration

## **declaration(PTree::Declaration\*&)**

```
bool declaration(PTree::Declaration*&);
```

## **integral\_declaration(PTree::Declaration\*&, PTree::Encoding&, PTree::Node\*, PTree::Node\*, PTree::Node\*)**

```
bool integral_declaration(PTree::Declaration*&, PTree::Encoding&, \
PTree::Node*, PTree::Node*, PTree::Node*);
```

## **const\_declaration(PTree::Declaration\*&, PTree::Encoding&, PTree::Node\*, PTree::Node\*)**

```
bool const_declaration(PTree::Declaration*&, PTree::Encoding&, \
PTree::Node*, PTree::Node*);
```

## **other\_declaration(PTree::Declaration\*&, PTree::Encoding&, PTree::Node\*, PTree::Node\*, PTree::Node\*)**

```
bool other_declaration(PTree::Declaration*&, PTree::Encoding&, \
PTree::Node*, PTree::Node*, PTree::Node*);
```

## **condition(PTree::Node\*&)**

```
bool condition(PTree::Node*&);
```

condition:

- expression
- type-specifier-seq declarator = assignment-expression

## **is\_constructor\_decl()**

```
bool is_constructor_decl();
```

## **is\_ptr\_to\_member(int)**

```
bool is_ptr_to_member(int);
```

## **opt\_member\_spec(PTree::Node\*&)**

```
bool opt_member_spec(PTree::Node*&);
```

## **opt\_storage\_spec(PTree::Node\*&)**

```
bool opt_storage_spec(PTree::Node*&);
```

storage-spec:

- empty
- static
- extern
- auto
- register
- mutable

## **opt\_cv\_qualifier(PTree::Node\*&)**

```
bool opt_cv_qualifier(PTree::Node*&);
```

cv-qualifier:

- empty
- const
- volatile

## **opt\_integral\_type\_or\_class\_spec(PTree::Node\*&, PTree::Encoding&)**

```
bool opt_integral_type_or_class_spec(PTree::Node*&, PTree::Encoding&);
```

**constructor\_decl(PTree::Node\*&, PTree::Encoding&)**

```
bool constructor_decl(PTree::Node*&, PTree::Encoding&);
```

**opt\_throw\_decl(PTree::Node\*&)**

```
bool opt_throw_decl(PTree::Node*&);
```

**init\_declarator\_list(PTree::Node\*&, PTree::Encoding&, bool, bool)**

```
bool init_declarator_list(PTree::Node*&, PTree::Encoding&, bool, bool \  
= false);
```

[gram.dcl.decl]

**init\_declarator(PTree::Node\*&, PTree::Encoding&, bool, bool)**

```
bool init_declarator(PTree::Node*&, PTree::Encoding&, bool, bool);
```

**declarator(PTree::Node\*&, DeclKind, bool, PTree::Encoding&, PTree::Encoding&, bool, bool)**

```
bool declarator(PTree::Node*&, Parser::DeclKind, bool, PTree::Encoding&, \  
PTree::Encoding&, bool, bool = false);
```

**declarator2(PTree::Node\*&, DeclKind, bool, PTree::Encoding&, PTree::Encoding&, bool, bool, PTree::Node\*\*)**

```
bool declarator2(PTree::Node*&, Parser::DeclKind, bool, \  
PTree::Encoding&, PTree::Encoding&, bool, bool, PTree::Node**);
```

**opt\_ptr\_operator(PTree::Node\*&, PTree::Encoding&)**

```
bool opt_ptr_operator(PTree::Node*&, PTree::Encoding&);
```

**member\_initializers(PTree::Node\*&)**

```
bool member_initializers(PTree::Node*&);
```

**member\_init(PTree::Node\*&)**

```
bool member_init(PTree::Node*&);
```

**name(PTree::Node\*&, PTree::Encoding&)**

```
bool name(PTree::Node*&, PTree::Encoding&);
```

**operator\_name(PTree::Node\*&, PTree::Encoding&)**

```
bool operator_name(PTree::Node*&, PTree::Encoding&);
```

**cast\_operator\_name(PTree::Node\*&, PTree::Encoding&)**

```
bool cast_operator_name(PTree::Node*&, PTree::Encoding&);
```

**ptr\_to\_member(PTree::Node\*&, PTree::Encoding&)**

```
bool ptr_to_member(PTree::Node*&, PTree::Encoding&);
```

**template\_args(PTree::Node\*&, PTree::Encoding&)**

```
bool template_args(PTree::Node*&, PTree::Encoding&);
```

**parameter\_declaration\_list\_or\_init(PTree::Node\*&, bool&, PTree::Encoding&, bool)**

```
bool parameter_declaration_list_or_init(PTree::Node*&, bool&, \
PTree::Encoding&, bool);
```

**parameter\_declaration\_list(PTree::Node\*&, PTree::Encoding&)**

```
bool parameter_declaration_list(PTree::Node*&, PTree::Encoding&);
```

**parameter\_declaration(PTree::ParameterDeclaration\*&, PTree::Encoding&)**

```
bool parameter_declaration(PTree::ParameterDeclaration*&, \
PTree::Encoding&);
```

parameter-declaration:

- decl-specifier-seq declarator
- decl-specifier-seq declarator = assignment-expression
- decl-specifier-seq abstract-declarator [opt]
- decl-specifier-seq abstract-declarator [opt] = assignment-expression

**function\_arguments(PTree::Node\*&)**

```
bool function_arguments(PTree::Node*&);
```

**designation(PTree::Node\*&)**

```
bool designation(PTree::Node*&);
```

**initialize\_expr(PTree::Node\*&)**

```
bool initialize_expr(PTree::Node*&);
```

**enum\_spec(PTree::EnumSpec\*&, PTree::Encoding&)**

```
bool enum_spec(PTree::EnumSpec*&, PTree::Encoding&);
```

**enum\_body(PTree::Node\*&)**

```
bool enum_body(PTree::Node*&);
```

**class\_spec(PTree::ClassSpec\*&, PTree::Encoding&)**

```
bool class_spec(PTree::ClassSpec*&, PTree::Encoding&);
```

**base\_clause(PTree::Node\*&)**

```
bool base_clause(PTree::Node*&);
```

base-clause:

- : base-specifier-list

base-specifier-list:

- base-specifier
- base-specifier-list , base-specifier

base-specifier:

- virtual access-specifier [opt] :: [opt] nested-name-specifier [opt] class-name
- access-specifier virtual [opt] :: [opt] nested-name-specifier [opt] class-name

**class\_body(PTree::ClassBody\*&)**

```
bool class_body(PTree::ClassBody*&);
```

**class\_member(PTree::Node\*&)**

```
bool class_member(PTree::Node*&);
```

**access\_decl(PTree::Node\*&)**

```
bool access_decl(PTree::Node*&);
```

**user\_access\_spec(PTree::Node\*&)**

```
bool user_access_spec(PTree::Node*&);
```

**expression(PTree::Node\*&)**

```
bool expression(PTree::Node*&);
```

expression:

- assignment-expression
- expression , assignment-expression

## **assign\_expr(PTree::Node\*&)**

```
bool assign_expr(PTree::Node*&);
```

assignment-expression:

- conditional-expression
- logical-or-expression assignment-operator assignment-expression
- throw-expression

## **conditional\_expr(PTree::Node\*&)**

```
bool conditional_expr(PTree::Node*&);
```

conditional-expression:

- logical-or-expression
- logical-or-expression ? expression : assignment-expression

## **logical\_or\_expr(PTree::Node\*&)**

```
bool logical_or_expr(PTree::Node*&);
```

logical-or-expression:

- logical-and-expression
- logical-or-expression // logical-and-expression

## **logical\_and\_expr(PTree::Node\*&)**

```
bool logical_and_expr(PTree::Node*&);
```

logical-and-expression:

- inclusive-or-expression
- logical-and-expr && inclusive-or-expression

## **inclusive\_or\_expr(PTree::Node\*&)**

```
bool inclusive_or_expr(PTree::Node*&);
```

inclusive-or-expression:

- exclusive-or-expression
- inclusive-or-expression / exclusive-or-expression

## exclusive\_or\_expr(PTree::Node\*&)

```
bool exclusive_or_expr(PTree::Node*&);
```

exclusive-or-expression:

- and-expression
- exclusive-or-expression ^ and-expression

## and\_expr(PTree::Node\*&)

```
bool and_expr(PTree::Node*&);
```

and-expression:

- equality-expression
- and-expression & equality-expression

## equality\_expr(PTree::Node\*&)

```
bool equality_expr(PTree::Node*&);
```

equality-expression:

- relational-expression
- equality-expression == relational-expression
- equality-expression != relational-expression

## relational\_expr(PTree::Node\*&)

```
bool relational_expr(PTree::Node*&);
```

relational-expression:

- shift-expression
- relational-expression < shift-expression
- relational-expression > shift-expression
- relational-expression <= shift-expression
- relational-expression >= shift-expression

## shift\_expr(PTree::Node\*&)

```
bool shift_expr(PTree::Node*&);
```

shift-expression:

- additive-expression

- shift-expression << additive-expression
- shift-expression >> additive-expression

## **additive\_expr(PTree::Node\*&)**

```
bool additive_expr(PTree::Node*&);
```

additive-expression:

- multiplicative-expression
- additive-expression + multiplicative-expression
- additive-expression - multiplicative-expression

## **multiplicative\_expr(PTree::Node\*&)**

```
bool multiplicative_expr(PTree::Node*&);
```

multiplicative-expression:

- pm-expression
- multiplicative-expression \* pm-expression
- multiplicative-expression / pm-expression
- multiplicative-expression % pm-expression

## **pm\_expr(PTree::Node\*&)**

```
bool pm_expr(PTree::Node*&);
```

pm-expression:

- cast-expression
- pm-expression .\* cast-expression
- pm-expression ->\* cast-expression

## **cast\_expr(PTree::Node\*&)**

```
bool cast_expr(PTree::Node*&);
```

cast-expression:

- unary-expression
- ( type-id ) cast-expression

## **type\_id(PTree::Node\*&)**

```
bool type_id(PTree::Node*&);
```

type-id:

- type-specifier-seq abstract-declarator [opt]

## **type\_id(PTree::Node\*&, PTree::Encoding&)**

```
bool type_id(PTree::Node*&, PTree::Encoding&);
```

## **unary\_expr(PTree::Node\*&)**

```
bool unary_expr(PTree::Node*&);
```

unary-expression:

- postfix-expression
- `++` cast-expression
- `--` cast-expression
- unary-operator cast-expression
- `sizeof` unary-expression
- `sizeof(` unary-expression `)`
- new-expression
- delete-expression

unary-operator:

- `*`
- `&`
- `+`
- `-`
- `!`
- `~`

## **throw\_expr(PTree::Node\*&)**

```
bool throw_expr(PTree::Node*&);
```

throw-expression:

- `throw` assignment-expression

## **sizeof\_expr(PTree::Node\*&)**

```
bool sizeof_expr(PTree::Node*&);
```

sizeof-expression:

- *sizeof* unary-expression
- *sizeof*( type-id )

## **offsetof\_expr(PTree::Node\*&)**

```
bool offsetof_expr(PTree::Node*&);
```

## **typeid\_expr(PTree::Node\*&)**

```
bool typeid_expr(PTree::Node*&);
```

typeid-expression:

- typeid( type-id )
- typeid( expression )

## **is\_allocate\_expr(Token::Type)**

```
bool is_allocate_expr(Token::Type);
```

## **allocate\_expr(PTree::Node\*&)**

```
bool allocate_expr(PTree::Node*&);
```

## **userdef\_keyword(PTree::Node\*&)**

```
bool userdef_keyword(PTree::Node*&);
```

## **allocate\_type(PTree::Node\*&)**

```
bool allocate_type(PTree::Node*&);
```

## **new\_declarator(PTree::Declarator\*&, PTree::Encoding&)**

```
bool new_declarator(PTree::Declarator*&, PTree::Encoding&);
```

## **allocate\_initializer(PTree::Node\*&)**

```
bool allocate_initializer(PTree::Node*&);
```

## **postfix\_expr(PTree::Node\*&)**

```
bool postfix_expr(PTree::Node*&);
```

## **primary\_expr(PTree::Node\*&)**

```
bool primary_expr(PTree::Node*&);
```

**typeof\_expr(PTree::Node\*&)**

```
bool typeof_expr(PTree::Node*&);
```

**userdef\_statement(PTree::Node\*&)**

```
bool userdef_statement(PTree::Node*&);
```

**var\_name(PTree::Node\*&)**

```
bool var_name(PTree::Node*&);
```

**var\_name\_core(PTree::Node\*&, PTree::Encoding&)**

```
bool var_name_core(PTree::Node*&, PTree::Encoding&);
```

**is\_template\_args()**

```
bool is_template_args();
```

**function\_body(PTree::Block\*&)**

```
bool function_body(PTree::Block*&);
```

function-body:

- compound-statement

**compound\_statement(PTree::Block\*&, bool)**

```
bool compound_statement(PTree::Block*&, bool create_scope = false);
```

compound-statement:

- */ statement [opt] }*

**statement(PTree::Node\*&)**

```
bool statement(PTree::Node*&);
```

**if\_statement(PTree::Node\*&)**

```
bool if_statement(PTree::Node*&);
```

if-statement:

- *if( condition ) statement*
- *if( condition ) statement else statement*

**switch\_statement(PTree::Node\*&)**

```
bool switch_statement(PTree::Node*&);
```

switch-statement:

- *switch* ( condition ) statement

## **while\_statement(PTree::Node\*&)**

```
bool while_statement(PTree::Node*&);
```

while-statement:

- *while* ( condition ) statement

## **do\_statement(PTree::Node\*&)**

```
bool do_statement(PTree::Node*&);
```

do-statement:

- *do* statement *while* ( condition ) ;

## **for\_statement(PTree::Node\*&)**

```
bool for_statement(PTree::Node*&);
```

## **try\_block(PTree::Node\*&)**

```
bool try_block(PTree::Node*&);
```

try-block:

- *try* compound-statement handler-seq

handler-seq:

- handler handler-seq [opt]

handler:

- *catch* ( exception-declaration ) compound-statement

exception-declaration:

- type-specifier-seq declarator
- type-specifier-seq abstract-declarator
- type-specifier-seq
- ...

## **expr\_statement(PTree::Node\*&)**

```
bool expr_statement(PTree::Node*&);
```

**declaration\_statement(PTree::Declaration\*&)**

```
bool declaration_statement(PTree::Declaration*&);
```

**integral\_decl\_statement(PTree::Declaration\*&, PTree::Encoding&, PTree::Node\*, PTree::Node\*, PTree::Node\*)**

```
bool integral_decl_statement(PTree::Declaration*&, PTree::Encoding&, \
PTree::Node*, PTree::Node*, PTree::Node*);
```

**other\_decl\_statement(PTree::Declaration\*&, PTree::Encoding&, PTree::Node\*, PTree::Node\*)**

```
bool other_decl_statement(PTree::Declaration*&, PTree::Encoding&, \
PTree::Node*, PTree::Node*);
```

**maybe\_typename\_or\_class\_template(Token&)**

```
bool maybe_typename_or_class_template(Token&);
```

**skip\_to(Token::Type)**

```
void skip_to(Token::Type token);
```

**more\_var\_name()**

```
bool more_var_name();
```

**my\_lexer**

```
Lexer & my_lexer;
```

**my\_ruleset**

```
int my_ruleset;
```

**my\_symbols**

```
SymbolFactory & my_symbols;
```

**my\_scope\_is\_valid**

```
bool my_scope_is_valid;
```

Record whether the current scope is valid. This allows the parser to continue parsing even after it was unable to enter a scope (such as in a function definition with a qualified name that wasn't declared before).

**my\_errors**

```
Parser::ErrorList my_errors;
```

## **my\_comments**

```
PTree::Node * my_comments;
```

## **my\_gt\_is\_operator**

```
bool my_gt_is_operator;
```

If true, > is interpreted as the greater-than operator. If false, it marks the end of a template-id or template-parameter-list.

## **my\_in\_template\_decl**

```
bool my_in_template_decl;
```

**CXX**

---

**GCC**

---

**MSVC**

---

**kDeclarator**

---

**kArgDeclarator**

---

**kCastDeclarator**

---

**tdk\_unknown**

---

**tdk\_decl**

---

**tdk\_instantiation**

---

**tdk\_specialization**

---

**num\_tdk**

---

## **class SymbolFactory**

SymbolFactory populates a symbol table.

### **Language**

```
enum Language { NONE=0x00, C99=0x01, CXX=0x02 };
```

### **SymbolFactory(Language)**

```
SymbolFactory(SymbolFactory::Language = CXX);
```

Create a symbol lookup table for the given language. Right now only CXX is supported.

### **current\_scope()**

```
SymbolLookup::Scope * current_scope();
```

**enter\_scope(const PTree::NamespaceSpec\*)**

```
void enter_scope(const PTree::NamespaceSpec*);
```

**enter\_scope(const PTree::ClassSpec\*)**

```
void enter_scope(const PTree::ClassSpec*);
```

**enter\_scope(const PTree::Node\*)**

```
void enter_scope(const PTree::Node*);
```

**enter\_scope(const PTree::FunctionDefinition\*)**

```
void enter_scope(const PTree::FunctionDefinition*);
```

**enter\_scope(const PTree::TemplateDecl\*)**

```
void enter_scope(const PTree::TemplateDecl*);
```

**enter\_scope(const PTree::Block\*)**

```
void enter_scope(const PTree::Block*);
```

**leave\_scope()**

```
void leave_scope();
```

**declare(const PTree::Declaration\*)**

```
void declare(const PTree::Declaration*);
```

**declare(const PTree::Typedef\*)**

```
void declare(const PTree::Typedef*);
```

**declare(const PTree::EnumSpec\*)**

```
void declare(const PTree::EnumSpec*);
```

declare the enumeration as a new TYPE as well as all the enumerators as CONST

**declare(const PTree::NamespaceSpec\*)**

```
void declare(const PTree::NamespaceSpec*);
```

declare the namespace as a new NAMESPACE

**declare(const PTree::ClassSpec\*)**

```
void declare(const PTree::ClassSpec*);
```

declare the class as a new TYPE

## declare(const PTree::TemplateDecl\*)

```
void declare(const PTree::TemplateDecl*);
```

## declare(const PTree::TypeParameter\*)

```
void declare(const PTree::TypeParameter*);
```

## declare(const PTree::UsingDirective\*)

```
void declare(const PTree::UsingDirective*);
```

## declare(const PTree::ParameterDeclaration\*)

```
void declare(const PTree::ParameterDeclaration*);
```

## declare(const PTree::UsingDeclaration\*)

```
void declare(const PTree::UsingDeclaration*);
```

## Scopes

```
typedef std::stack< SymbolLookup::Scope *> Scopes;
```

## lookup\_scope\_of\_qname(PTree::Encoding&,const PTree::Node\*)

```
SymbolLookup::Scope * lookup_scope_of_qname(PTree::Encoding&, const \
PTree::Node*);
```

Lookup the scope of a qualified name. The encoded name is modified in place to refer to the unqualified name.

## my\_language

```
SymbolFactory::Language my_language;
```

## my\_scopes

```
SymbolFactory::Scopes my_scopes;
```

## my\_prototype

```
SymbolLookup::PrototypeScope * my_prototype;
```

When parsing a function definition the declarator is seen first, and thus a prototype is created to hold the parameters. Later, when the function definition proper is seen, the symbols are transferred and the prototype is deleted.

## **my\_template\_parameters**

```
SymbolLookup::TemplateParameterScope * my_template_parameters;
```

When parsing a class or function template the template-parameter-list is seen first. Since ClassSpec and Declarator don't know they are part of a template declaration, we cache it here so it gets consumed when the Class or PrototypeScope are created.

## **NONE**

---

## **C99**

---

## **CXX**

---

## **class Timer**

### **Timer()**

```
Timer();
```

### **elapsed()const**

```
double elapsed();
```

### **my\_start**

```
std::clock_t my_start;
```

## **struct Token**

A Token is what the Lexer splits an input stream into. It refers to a region in the underlaying buffer and it has a type.

- line directive:  $^{\#}\{blank\}*\{digit\}+(\{blank\}+.*)?n$
- pragma directive:  $^{\#}\{blank\}*"pragma".*n$
- Constant:
  - $\{digit\}+\{int\_suffix\}*$
  - $"0"\{xletter\}\{hexdigit\}+\{int\_suffix\}*$
  - $\{digit\}.\{digit\}+\{float\_suffix\}*$
  - $\{digit\}+\{float\_suffix\}*$
  - $\{digit\}.\{digit\}+"e"(+"/-")*\{digit\}+\{float\_suffix\}*$
  - $\{digit\}+\."e"(+"/-")*\{digit\}+\{float\_suffix\}*$

- $\{digit\} + "e" ("+" | "-") * \{digit\} + \{float\_suffix\}^*$
- CharConst: ' $[^\n] / [^n]$ '
- WideCharConst:  $L'[^n] / [^n]$ '
- StringL: " $[^\n] / ["n] $"$$
- WideStringL:  $L"["n] / ["n] $"$$
- Identifier:  $\{letter\} + (\{letter\} / \{digit\})^*$
- AssignOp: \*= /= %= += -= &= ^= <<= >>=
- EqualOp: == !=
- RelOp: <= >=
- ShiftOp: << >>
- LogOrOp: //
- LogAndOp: &&
- IncOp: ++ --
- Scope: ::
- Ellipsis: ...
- PmOp: .\* ->\*
- ArrowOp: ->
- others: !%& \*() -+= {} / ~[] : <> ? , ./
- BadToken: *others*

## Type

```
typedef int Type;
```

## `0000

```
enum `0000 { Identifier=258, Constant, CharConst, StringL, AssignOp, \
EqualOp, RelOp, ShiftOp, LogOrOp, LogAndOp, IncOp, Scope, Ellipsis, \
PmOp, ArrowOp, BadToken, AUTO, CHAR, CLASS, CONST, DELETE, DOUBLE, \
ENUM, EXTERN, FLOAT, FRIEND, INLINE, INT, LONG, NEW, OPERATOR, PRIVATE, \
PROTECTED, PUBLIC, REGISTER, SHORT, SIGNED, STATIC, STRUCT, TYPEDEF, \
TYPENAME, UNION, UNSIGNED, VIRTUAL, VOID, VOLATILE, TEMPLATE, MUTABLE, \
BREAK, CASE, CONTINUE, DEFAULT, DO, ELSE, FOR, GOTO, IF, OFFSETOF, \
RETURN, SIZEOF, SWITCH, THIS, WHILE, ATTRIBUTE, METACLASS, UserKeyword, \
UserKeyword2, UserKeyword3, UserKeyword4, BOOLEAN, EXTENSION, TRY, \
CATCH, THROW, UserKeyword5, NAMESPACE, USING, TYPEID, TYPEOF, \
WideStringL, WideString, WCHAR, ntDeclarator=400, ntName, \
ntFstyleCast, ntClassSpec, ntEnumSpec, ntDeclaration, ntTypedef, \
```

```
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ntAccessDecl, ntNamespaceSpec, ntUsing, ntTemplateInstantiation, \
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ntDoStatement, ntForStatement, ntBreakStatement, ntContinueStatement, \
ntReturnStatement, ntGotoStatement, ntCaseStatement, ntDefaultStatement, \
ntLabelStatement, ntExprStatement, ntTryStatement, ntCommaExpr, \
ntAssignExpr, ntCondExpr, ntInfixExpr, ntPmExpr, ntCastExpr, \
ntUnaryExpr, ntSizeofExpr, ntNewExpr, ntDeleteExpr, ntArrayExpr, \
ntFuncallExpr, ntPostfixExpr, ntUserStatementExpr, ntDotMemberExpr, \
ntArrowMemberExpr, ntParenExpr, ntStaticUserStatementExpr, ntThrowExpr, \
ntTypeidExpr, ntTypeofExpr, Ignore=500, ASM, DECLSPEC, PRAGMA, INT64, \
Comment};
```

## Token()

```
Token();
```

## Token(const char\*,size\_t,Type)

```
Token(const char* s, size_t l, Token::Type t);
```

## operator==(char)const

```
bool operator==(char c);
```

## ptr

```
const char * ptr;
```

## length

```
size_t length;
```

## type

```
Token::Type type;
```

## Identifier

---

## Constant

---

< The first 256 are representing character literals.

**CharConst**

---

**StringL**

---

**AssignOp**

---

**EqualOp**

---

**RelOp**

---

**ShiftOp**

---

**LogOrOp**

---

**LogAndOp**

---

**IncOp**

---

**Scope**

---

**Ellipsis**

---

**PmOp**

---

**ArrowOp**

---

**BadToken**

---

**AUTO**

---

**CHAR**

---

**CLASS**

---

**CONST**

---

**DELETE**

---

**DOUBLE**

---

**ENUM**

---

**EXTERN**

---

**FLOAT**

---

**FRIEND**

---

**INLINE**

---

**INT**

---

**LONG**

---

**NEW**

---

**OPERATOR**

---

**PRIVATE**

---

**PROTECTED**

---

**PUBLIC**

---

**REGISTER**

---

**SHORT**

---

**SIGNED**

---

**STATIC**

---

**STRUCT**

---

**TYPEDEF**

---

**TYPENAME**

---

**UNION**

---

**UNSIGNED**

---

**VIRTUAL**

---

**VOID**

---

**VOLATILE**

---

**TEMPLATE**

---

**MUTABLE**

---

**BREAK**

---

**CASE**

---

**CONTINUE**

---

**DEFAULT**

---

**DO**

---

**ELSE**

---

**FOR**

---

**GOTO**

---

**IF**

---

**OFFSETOF**

---

**RETURN**

---

**SIZEOF**

---

**SWITCH**

---

**THIS**

---

**WHILE**

---

**ATTRIBUTE**

---

**METACLASS**

---

**UserKeyword**

---

**UserKeyword2**

---

**UserKeyword3**

---

**UserKeyword4**

---

**BOOLEAN**

---

**EXTENSION**

---

**TRY**

---

**CATCH**

---

**THROW**

---

**UserKeyword5**

---

**NAMESPACE**

---

**USING**

---

**TYPEID**

---

**TYPEOF**

---

**WideStringL**

---

**WideCharConst**

---

**WCHAR**

---

**ntDeclarator**

---

**ntName**

---

**ntFstyleCast**

---

**ntClassSpec**

---

**ntEnumSpec**

---

**ntDeclaration**

---

**ntTypedef**

---

**ntTemplateDecl**

---

**ntMetaclassDecl**

---

**ntParameterDecl**

---

**ntLinkageSpec**

---

**ntAccessSpec**

---

**ntUserAccessSpec**

---

**ntUserdefKeyword**

---

**ntExternTemplate**

---

**ntAccessDecl**

---

**ntNamespaceSpec**

---

**ntUsing**

---

**ntTemplateInstantiation**

---

**ntNamespaceAlias**

---

**ntIfStatement**

---

**ntSwitchStatement**

---

**ntWhileStatement**

---

**ntDoStatement**

---

**ntForStatement**

---

**ntBreakStatement**

---

**ntContinueStatement**

---

**ntReturnStatement**

---

**ntGotoStatement**

---

**ntCaseStatement**

---

**ntDefaultStatement**

---

**ntLabelStatement**

---

**ntExprStatement**

---

**ntTryStatement**

---

**ntCommaExpr**

---

**ntAssignExpr**

---

**ntCondExpr**

---

**ntInfixExpr**

---

**ntPmExpr**

---

**ntCastExpr**

---

**ntUnaryExpr**

---

**ntSizeofExpr**

---

**ntNewExpr**

---

**ntDeleteExpr**

---

**ntArrayExpr**

---

**ntFuncallExpr**

---

**ntPostfixExpr**

---

**ntUserStatementExpr**

---

**ntDotMemberExpr**

---

**ntArrowMemberExpr**

---

**ntParenExpr**

---

**ntStaticUserStatementExpr**

---

**ntThrowExpr**

---

**ntTypeidExpr**

---

**ntTypeofExpr**

---

**Ignore**

---

**ASM**

---

**DECLSPEC**

---

**PRAGMA**

---

**INT64**

---

**Comment**

---

**class Trace****struct Entry****operator<<(const T&)const**

```
const Trace::Entry & operator<<(const Trace::Entry::T& t);
```

**Entry(bool)**

```
Entry(bool e);
```

**Entry(const Entry&)**

```
Entry(const Trace::Entry& e);
```

**~Entry()**

```
~Entry();
```

**enabled**

```
bool enabled;
```

**Category**

```
enum Category { NONE=0x0, PTREE=0x01, SYMBOLLOOKUP=0x02, PARSING=0x04, \
TRANSLATION=0x08, ALL=0xff };
```

**Trace(const std::string&,unsigned int,const T&)**

```
Trace(const std::string& s, unsigned int c, const Synopsis::Trace::T& \
t);
```

**operator<<(const T&)const**

```
Trace::Entry operator<<(const Trace::T& t);
```

**Trace(const std::string&,unsigned int)**

```
Trace(const std::string& s, unsigned int c);
```

**~Trace()**

```
~Trace();
```

**enable(unsigned int)**

```
void enable(unsigned int mask = ALL);
```

**indent()**

```
std::string indent();
```

**my\_mask**

```
unsigned int my_mask;
```

**my\_level**

```
size_t my_level;
```

**my\_scope**

```
std::string my_scope;
```

**my\_visibility**

```
bool my_visibility;
```

---

**NONE**

---

**PTREE**

---

**SYMBOLLOOKUP**

---

**PARSING**

---

**TRANSLATION**

---

**ALL****is\_blank(char)**

```
bool is_blank(char c);
```

**is\_digit(char)**

```
bool is_digit(char c);
```

**is\_eletter(char)**

```
bool is_eletter(char c);
```

**is\_float\_suffix(char)**

```
bool is_float_suffix(char c);
```

**is\_hexdigit(char)**

```
bool is_hexdigit(char c);
```

**is\_int\_suffix(char)**

```
bool is_int_suffix(char c);
```

**is\_letter(char)**

```
bool is_letter(char c);
```

## is\_xletter(char)

```
bool is_xletter(char c);
```

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```

---

# Chapter 3. Python API Reference

Abstract explaining the Python API reference.

## The Internal Representation

### Modules

- DocString
- IR
- QualifiedName
- SXR
- SourceFile

### Module DocString

#### class DocString

A doc-string for ASG nodes.

##### text

```
text
```

##### markup

```
markup
```

##### \_\_init\_\_

```
__init__(self, text, markup)
```

### Module IR

#### class IR

```
IR.IR
```

Top-level Internal Representation. This is essentially a dictionary of different representations such as Parse Tree, Abstract Semantic Graph, etc.

##### files

```
files
```

A dictionary mapping filenames to `SourceFile.SourceFile` instances.

**asg**

```
asg
```

The Abstract Semantic Graph.

**sxr**

```
sxr
```

The Source Cross-Reference SymbolTable.

**\_\_init\_\_**

```
__init__(self, files = None, asg = None, sxr = None)
```

Constructor

**copy**

```
copy(self)
```

Make a shallow copy of this IR.

**save**

```
save(self, filename)
```

Saves an IR object to the given filename

**merge**

```
merge(self, other)
```

Merges another IR. Files and declarations are appended to those in this IR, and types are merged by overwriting existing types - Unduplicator is responsible for sorting out the mess this may cause :)

**load**

```
load(filename)
```

Loads an IR object from the given filename

## Module QualifiedName

### class QualifiedName

```
QualifiedNames.QualifiedName
```

**\_\_getslice\_\_**

```
__getslice__(self, begin, end)
```

This method exists because python < 3.0 still uses `__getslice__` for builtin types. (See <http://bugs.python.org/issue2041>)

**\_\_add\_\_**

```
__add__(self, other)
```

Overload self + other to preserve the type.

**sep**

```
sep
```

**\_\_getitem\_\_**

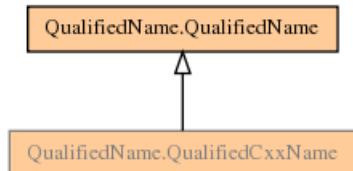
```
__getitem__(self, i)
```

If i is a slice, make sure a QualifiedName is returned.

**prune**

```
prune(self, other)
```

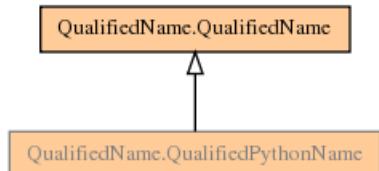
Return a copy of other with any prefix it shares with self removed. e.g. ('A', 'B', 'C', 'D').prune(('A', 'B', 'D')) -> ('C', 'D')

**class QualifiedCxxName****sep**

```
sep
```

**\_\_str\_\_**

```
__str__(self)
```

**class QualifiedPythonName****sep**

```
sep
```

**\_\_str\_\_**

```
__str__(self)
```

## Module SXR

### class Entry

SXR.Entry

#### definitions

```
definitions
```

List of (file, line, scope) tuples.

#### calls

```
calls
```

List of (file, line, scope) tuples.

#### references

```
references
```

List of (file, line, scope) tuples.

**\_\_init\_\_**

```
__init__(self)
```

Represents a set of references found for a given symbol.

### class SXR

SXR.SXR

Symboltable containing source code locations of symbol definitions, as well as different types of references.

**\_index**

```
_index
```

**\_\_init\_\_**

```
__init__(self)
```

**index**

```
index(self)
```

**generate\_index**

```
generate_index(self)
```

(Re-)generate an index after entries have been added.

**merge**

```
merge(self, other)
```

## Module SourceFile

### class Include

Information about an include directive in a SourceFile. If the include directive required a macro expansion to get the filename, the `is_macro` will return true. If the include directive was actually an `include_next`, then `is_next` will return true.

**target**

```
target
```

The target SourceFile object being referenced.

**name**

```
name
```

The name by which the target is referenced.

**is\_macro**

```
is_macro
```

True if the directive uses a macro.

**is\_next**

```
is_next
```

True if this is using `#include_next` (GNU extension).

**\_\_init\_\_**

```
__init__(self, target, name, is_macro, is_next)
```

### class MacroCall

A class to support mapping from positions in a preprocessed file back to positions in the original file.

**name**

```
name
```

The name of the macro being called.

## **start**

```
start
```

(line, column) pair indicating the start of the call.

## **end**

```
end
```

(line, column) pair indicating the end of the call.

## **expanded\_start**

```
expanded_start
```

(line, column) pair indicating the start of the expansion in the preprocessed file.

## **expanded\_end**

```
expanded_end
```

(line, column) pair indicating the end of the expansion in the preprocessed file.

## **\_\_init\_\_**

```
__init__(self, name, start, end, expanded_start, expanded_end)
```

## **class SourceFile**

The information about a file that the ASG was generated from. Contains filename, all declarations from this file (even nested ones) and includes (aka imports) from this file.

### **name**

```
name
```

The filename.

### **abs\_name**

```
abs_name
```

The absolute filename.

### **annotations**

```
annotations
```

Dictionary with file annotations.

**includes**

```
includes
```

List of includes this file contains.

**declarations**

```
declarations
```

List of declarations this file contains.

**macro\_calls**

```
macro_calls
```

List of macro calls this file contains.

**\_\_init\_\_**

```
__init__(self, name, abs_name, language, primary = False)
```

Constructor

# The Abstract Semantic Graph

**class ASG****declarations**

```
declarations
```

**types**

```
types
```

**\_\_init\_\_**

```
__init__(self, declarations = None, types = None)
```

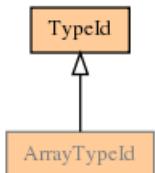
**copy**

```
copy(self)
```

**merge**

```
merge(self, other)
```

## class ArrayTypeld



A modifier that adds array dimensions to a type-id.

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

### **alias**

```
alias
```

### **sizes**

```
sizes
```

### \_\_init\_\_

```
__init__(self, language, alias, sizes)
```

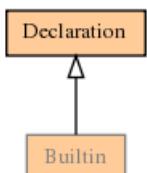
### **accept**

```
accept(self, visitor)
```

### \_\_str\_\_

```
__str__(self)
```

## class Builtin

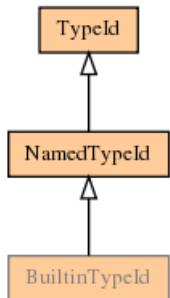


A node for internal use only.

### **accept**

```
accept(self, visitor)
```

## class **BuiltinTypeId**



Class for builtin type-ids

### **\_\_cmp\_\_**

```
__cmp__(self, other)
```

Comparison operator

### **\_\_init\_\_**

```
__init__(self, language, name)
```

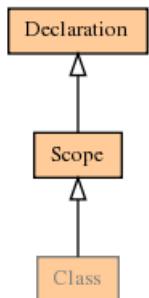
### **accept**

```
accept(self, visitor)
```

### **\_\_str\_\_**

```
__str__(self)
```

## class **Class**



### **parents**

```
parents
```

### **is\_template\_specialization**

```
is_template_specialization
```

## primary\_template

```
primary_template
```

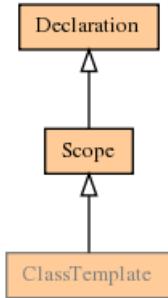
### \_\_init\_\_

```
__init__(self, file, line, type, name, is_template_specialization = \
False)
```

### accept

```
accept(self, visitor)
```

## class ClassTemplate



### parents

```
parents
```

### template

```
template
```

### is\_template\_specialization

```
is_template_specialization
```

## primary\_template

```
primary_template
```

## specializations

```
specializations
```

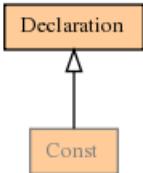
### \_\_init\_\_

```
__init__(self, file, line, type, name, template = None, \
is_template_specialization = False)
```

## accept

```
accept(self, visitor)
```

## class Const



Constant declaration. A constant is a name with a type and value.

## ctype

```
ctype
```

## value

```
value
```

## \_\_init\_\_

```
__init__(self, file, line, type, ctype, name, value)
```

## accept

```
accept(self, visitor)
```

## DEFAULT

```
DEFAULT
```

## class Debugger

```
Debugger
```

Wrap the object's 'accept' method, printing out the visitor's type. Useful for tracing visitors visiting declarations.

## \_\_init\_\_

```
__init__(cls, name, bases, dict)
```

## class Declaration

```
Declaration
```

Declaration base class. Every declaration has a name, type, accessibility and annotations. The default accessibility is DEFAULT except for C++ where the Parser always sets it to one of the other three.

## file

```
file
```

SourceFile instance this declaration is part of.

## line

```
line
```

The line number of this declaration.

## name

```
name
```

The (fully qualified) name of the declared object.

## type

```
type
```

A string describing the (language-specific) type of the declared object.

## accessibility

```
accessibility
```

Accessibility descriptor for the declared object.

## annotations

```
annotations
```

A dictionary holding any annotations of this object.

## \_\_init\_\_

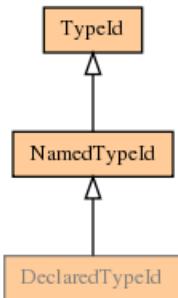
```
__init__(self, file, line, type, name)
```

## accept

```
accept(self, visitor)
```

Visit the given visitor

## class DeclaredTypeld



Class for declared types

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

### declaration

```
declaration
```

### \_\_init\_\_

```
__init__(self, language, name, declaration)
```

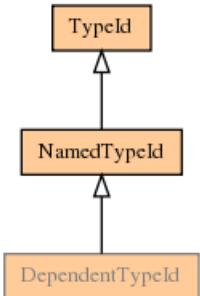
### accept

```
accept(self, visitor)
```

### \_\_str\_\_

```
__str__(self)
```

## class DependentTypeld



Class for template dependent type-ids

**\_\_cmp\_\_**

```
__cmp__(self, other)
```

Comparison operator

**\_\_init\_\_**

```
__init__(self, language, name)
```

**accept**

```
accept(self, visitor)
```

**\_\_str\_\_**

```
__str__(self)
```

**class Dictionary**

Dictionary

Dictionary extends the builtin 'dict' by adding a lookup method to it.

**lookup**

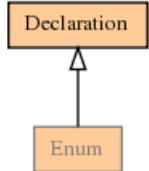
```
lookup(self, name, scopes)
```

locate 'name' in one of the scopes

**merge**

```
merge(self, dict)
```

merge in a foreign dictionary, overriding already defined types only if they are of type 'Unknown'.

**class Enum**

Enum declaration. The actual names and values are encapsulated by Enumerator objects.

**enumerators**

```
enumerators
```

**eos**

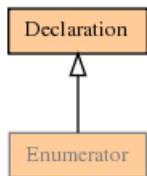
```
eos
```

**\_\_init\_\_**

```
__init__(self, file, line, name, enumerators)
```

**accept**

```
accept(self, visitor)
```

**class Enumerator**

Enumerator of an Enum. Enumerators represent the individual names and values in an enum.

**value**

```
value
```

**\_\_init\_\_**

```
__init__(self, file, line, name, value)
```

**accept**

```
accept(self, visitor)
```

**class Error**

Exception class used by ASG internals.

**err**

```
err
```

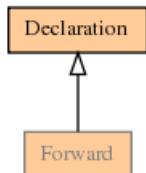
**\_\_init\_\_**

```
__init__(self, err)
```

**\_\_repr\_\_**

```
__repr__(self)
```

## class Forward



Forward declaration

## template

```
template
```

## is\_template\_specialization

```
is_template_specialization
```

## primary\_template

```
primary_template
```

## specializations

```
specializations
```

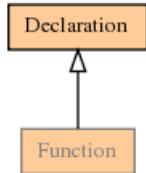
## \_\_init\_\_

```
__init__(self, file, line, type, name, is_template_specialization = \
False)
```

## accept

```
accept(self, visitor)
```

## class Function



Function declaration. Note that function names are stored in mangled form to allow overriding. Formatters should use the `real_name` to extract the unmangled name.

## \_\_cmp\_\_

```
__cmp__(self, other)
```

Recursively compares the typespec of the function

**\_real\_name**

```
_real_name
```

**premodifier**

```
premodifier
```

**return\_type**

```
return_type
```

**parameters**

```
parameters
```

**postmodifier**

```
postmodifier
```

**exceptions**

```
exceptions
```

**real\_name**

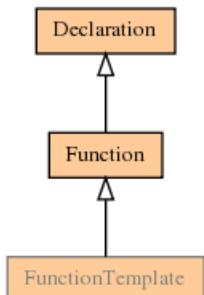
```
real_name
```

**\_\_init\_\_**

```
__init__(self, file, line, type, premod, return_type, postmod, name, \
real_name)
```

**accept**

```
accept(self, visitor)
```

**class FunctionTemplate**

## template

```
template
```

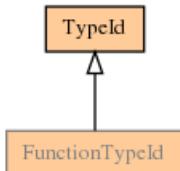
### \_\_init\_\_

```
__init__(self, file, line, type, premod, return_type, postmod, name, \
real_name, template = None)
```

### accept

```
accept(self, visitor)
```

## class FunctionTypeld



Class for function (pointer) types.

### return\_type

```
return_type
```

### premod

```
premod
```

### parameters

```
parameters
```

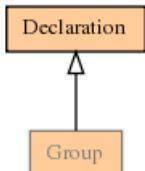
### \_\_init\_\_

```
__init__(self, language, return_type, premod, parameters)
```

### accept

```
accept(self, visitor)
```

## class Group



Base class for groups which contain declarations. This class doesn't correspond to any language construct. Rather, it may be used with comment-embedded grouping tags to regroup declarations that are to appear together in the manual.

## declarations

```
declarations
```

### \_\_init\_\_

```
__init__(self, file, line, type, name)
```

### accept

```
accept(self, visitor)
```

## class Inheritance

```
Inheritance
```

Inheritance class. This class encapsulates the information about an inheritance, such as attributes like 'virtual' and 'public'

### type

```
type
```

### parent

```
parent
```

### attributes

```
attributes
```

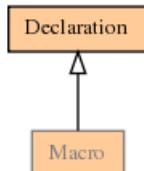
### \_\_init\_\_

```
__init__(self, type, parent, attributes)
```

### accept

```
accept(self, visitor)
```

## class Macro



A preprocessor macro. Note that macros are not strictly part of the ASG, and as such are always in the global scope. A macro is "temporary" if it was `#undefined` in the same file it was `#defined` in.

## parameters

```
parameters
```

## text

```
text
```

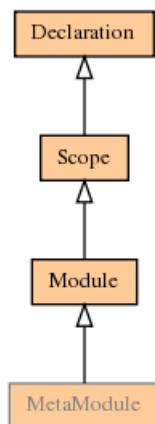
## \_\_init\_\_

```
__init__(self, file, line, type, name, parameters, text)
```

## accept

```
accept(self, visitor)
```

# class MetaModule



Module Class that references all places where this Module occurs

## module\_declarations

```
module_declarations
```

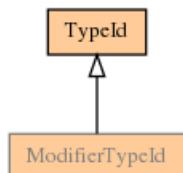
## \_\_init\_\_

```
__init__(self, type, name)
```

## accept

```
accept(self, visitor)
```

## class ModifierTypeld



Class for alias types with modifiers (such as 'const', '&', etc.)

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

### **alias**

```
alias
```

### **premod**

```
premod
```

### **postmod**

```
postmod
```

### \_\_init\_\_

```
__init__(self, language, alias, premod, postmod)
```

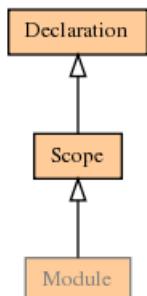
### **accept**

```
accept(self, visitor)
```

### \_\_str\_\_

```
__str__(self)
```

## class Module



Module class

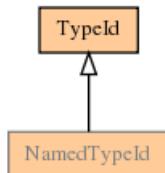
## **\_\_init\_\_**

```
__init__(self, file, line, type, name)
```

## **accept**

```
accept(self, visitor)
```

## **class NamedTypeld**



Named type abstract class

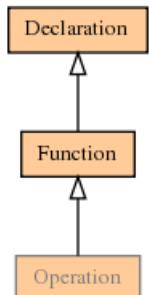
## **name**

```
name
```

## **\_\_init\_\_**

```
__init__(self, language, name)
```

## **class Operation**



Operation class. An operation is related to a Function and is currently identical.

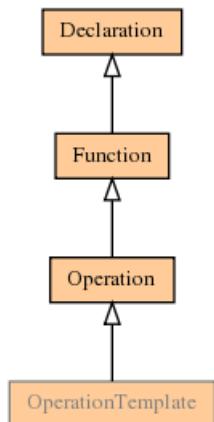
## **\_\_init\_\_**

```
__init__(self, file, line, type, premod, return_type, postmod, name, \
real_name)
```

## **accept**

```
accept(self, visitor)
```

## class OperationTemplate



### template

```
template
```

### \_\_init\_\_

```
__init__(self, file, line, type, premod, return_type, postmod, name, \
real_name, template = None)
```

### accept

```
accept(self, visitor)
```

## PRIVATE

```
PRIVATE
```

## PROTECTED

```
PROTECTED
```

## PUBLIC

```
PUBLIC
```

## class Parameter

```
Parameter
```

Function Parameter

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

## premodifier

```
premodifier
```

## type

```
type
```

## postmodifier

```
postmodifier
```

## name

```
name
```

## value

```
value
```

## \_\_init\_\_

```
__init__(self, premod, type, postmod, name = '', value = '')
```

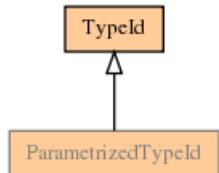
## accept

```
accept(self, visitor)
```

## \_\_str\_\_

```
__str__(self)
```

## class ParametrizedTypeId



Class for parametrized type-id instances.

## \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

## template

```
template
```

## parameters

```
parameters
```

## \_\_init\_\_

```
__init__(self, language, template, parameters)
```

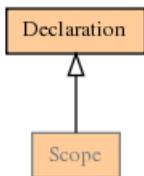
## accept

```
accept(self, visitor)
```

## \_\_str\_\_

```
__str__(self)
```

## class Scope



Base class for scopes (named groups).

## declarations

```
declarations
```

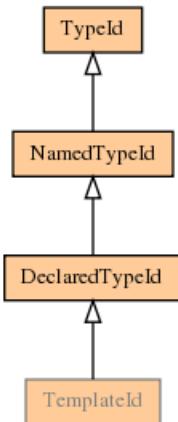
## \_\_init\_\_

```
__init__(self, file, line, type, name)
```

## accept

```
accept(self, visitor)
```

## class TemplateId



Class for template-ids.

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

### parameters

```
parameters
```

### \_\_init\_\_

```
__init__(self, language, name, declaration, parameters)
```

### accept

```
accept(self, visitor)
```

### \_\_str\_\_

```
__str__(self)
```

## class Typeld



Type-id abstract class.

### \_\_cmp\_\_

```
__cmp__(self, other)
```

Comparison operator

## language

```
language
```

### \_\_init\_\_

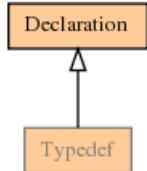
```
__init__(self, language)
```

### accept

```
accept(self, visitor)
```

visitor pattern accept. @see Visitor

## class Typedef



## alias

```
alias
```

### constr

```
constr
```

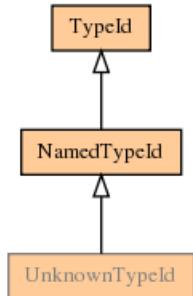
### \_\_init\_\_

```
__init__(self, file, line, type, name, alias, constr)
```

### accept

```
accept(self, visitor)
```

## class UnknownTypeld



Class for not (yet) known type-ids.

**\_\_cmp\_\_**

```
__cmp__(self, other)
```

Comparison operator

**link**

```
link
```

**base**

```
base
```

**\_\_init\_\_**

```
__init__(self, language, name)
```

**resolve**

```
resolve(self, language, name, link)
```

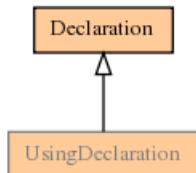
Associate this type-id with an external reference, instead of a declaration.

**accept**

```
accept(self, visitor)
```

**str\_\_**

```
_str__(self)
```

**class UsingDeclaration**

Import a declaration into this module.

**alias**

```
alias
```

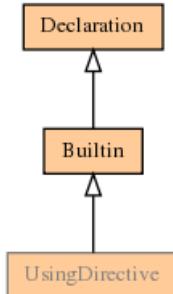
**\_\_init\_\_**

```
__init__(self, file, line, type, name, alias)
```

## accept

```
accept(self, visitor)
```

## class UsingDirective

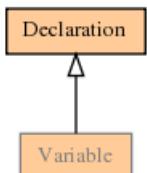


Import one module's content into another.

## accept

```
accept(self, visitor)
```

## class Variable



Variable definition

## vtype

```
vtype
```

## constr

```
constr
```

## \_\_init\_\_

```
__init__(self, file, line, type, name, vtype, constr)
```

## accept

```
accept(self, visitor)
```

## class Visitor

```
Visitor
```

Visitor for ASG nodes

### visit\_builtin\_type\_id

```
visit_builtin_type_id(self, type)
```

### visit\_unknown\_type\_id

```
visit_unknown_type_id(self, type)
```

### visit\_declared\_type\_id

```
visit_declared_type_id(self, type)
```

### visit\_modifier\_type\_id

```
visit_modifier_type_id(self, type)
```

### visit\_array\_type\_id

```
visit_array_type_id(self, type)
```

### visit\_template\_id

```
visit_template_id(self, type)
```

### visit\_parametrized\_type\_id

```
visit_parametrized_type_id(self, type)
```

### visit\_function\_type\_id

```
visit_function_type_id(self, type)
```

### visit\_dependent\_type\_id

```
visit_dependent_type_id(self, type)
```

### visit\_declaration

```
visit_declaration(self, node)
```

### visit\_builtin

```
visit_builtin(self, node)
```

Visit a Builtin instance. By default do nothing. Processors who operate on Builtin nodes have to provide an appropriate implementation.

## **visit\_using\_directive**

```
visit_using_directive(self, node)
```

## **visit\_using\_declaration**

```
visit_using_declaration(self, node)
```

## **visit\_macro**

```
visit_macro(self, node)
```

## **visit\_forward**

```
visit_forward(self, node)
```

## **visit\_group**

```
visit_group(self, node)
```

## **visit\_scope**

```
visit_scope(self, node)
```

## **visit\_module**

```
visit_module(self, node)
```

## **visit\_meta\_module**

```
visit_meta_module(self, node)
```

## **visit\_class**

```
visit_class(self, node)
```

## **visit\_class\_template**

```
visit_class_template(self, node)
```

## **visit\_typedef**

```
visit_typedef(self, node)
```

## **visit\_enumerator**

```
visit_enumerator(self, node)
```

**visit\_enum**

```
visit_enum(self, node)
```

**visit\_variable**

```
visit_variable(self, node)
```

**visit\_const**

```
visit_const(self, node)
```

**visit\_function**

```
visit_function(self, node)
```

**visit\_function\_template**

```
visit_function_template(self, node)
```

**visit\_operation**

```
visit_operation(self, node)
```

**visit\_operation\_template**

```
visit_operation_template(self, node)
```

**visit\_parameter**

```
visit_parameter(self, node)
```

**visit\_inheritance**

```
visit_inheritance(self, node)
```

**ccmp**

```
ccmp(a, b)
```

Compares classes of two objects

# The Processor Framework

## Modules

- Processor
- process

## Module Processor

### class Error

```
Processor.Error
```

An exception a processor may raise during processing.

#### what

```
what
```

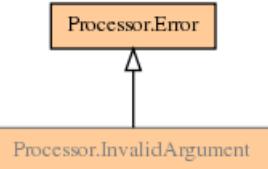
#### \_\_init\_\_

```
__init__(self, what)
```

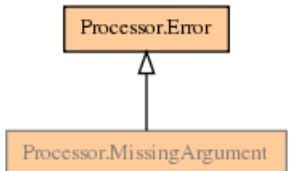
#### \_\_str\_\_

```
__str__(self)
```

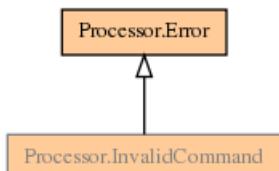
### class InvalidArgument



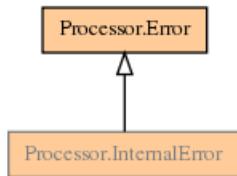
### class MissingArgument



### class InvalidCommand



## class InternalError



## class Parameter



A Parameter is a documented value, kept inside a Processor.

### value

```
value
```

### doc

```
doc
```

### \_\_init\_\_

```
__init__(self, value, doc)
```

## class Type



Type is the Processor's \_\_metaclass\_\_.

### \_\_init\_\_

```
__init__(cls, name, bases, dict)
```

Generate a '\_parameters' dictionary holding all the 'Parameter' objects. Then replace 'Parameter' objects by their values for convenient use inside the code.

## class Parametrized



Parametrized implements handling of Parameter attributes.

### \_\_metaclass\_\_

```
__metaclass__
```

### \_\_new\_\_

```
__new__(cls, args, kwds)
```

merge all parameter catalogs for easy access to documentation, then use keyword arguments to override default values.

## **\_\_init\_\_**

```
__init__(self, kwds)
```

The constructor uses the keywords to update the parameter list.

## **clone**

```
clone(self, args, kwds)
```

Create a copy of this Parametrized. The only copied attributes are the ones corresponding to parameters.

## **get\_parameters**

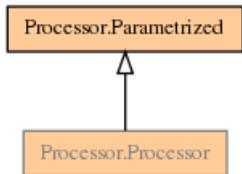
```
get_parameters(self)
```

## **set\_parameters**

```
set_parameters(self, kwds)
```

Sets the given parameters to override the default values.

## **class Processor**



Processor documentation...

## **verbose**

```
verbose
```

## **debug**

```
debug
```

## **profile**

```
profile
```

## **input**

```
input
```

## **output**

```
output
```

## merge\_input

```
merge_input(self, ir)
```

Join the given IR with a set of IRs to be read from 'input' parameter

## output\_and\_return\_ir

```
output_and_return_ir(self)
```

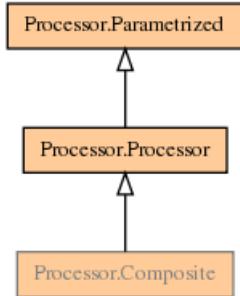
writes output if the 'output' attribute is set, then returns

## process

```
process(self, ir, kwds)
```

The process method provides the interface to be implemented by subclasses. Commonly used arguments are 'input' and 'output'. If 'input' is defined, it is interpreted as one or more input file names. If 'output' is defined, it is interpreted as an output file (or directory) name. This implementation may serve as a template for real processors.

## class Composite



A Composite processor.

## processors

```
processors
```

### \_\_init\_\_

```
__init__(self, processors, kwds)
```

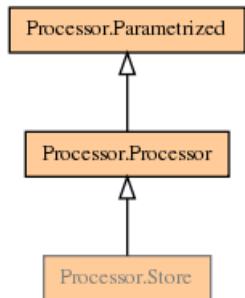
This `__init__` is a convenience constructor that takes a var list to list the desired processors. If the named values contain 'processors', they override the var list.

## process

```
process(self, ir, kwds)
```

apply a list of processors. The 'input' value is passed to the first processor only, the 'output' to the last. 'verbose' and 'debug' are passed down if explicitly given as named values. All other keywords are ignored.

## class Store



Store is a convenience class useful to write out the intermediate state of the IR within a pipeline such as represented by the 'Composite'

### process

```
process(self, ir, kwds)
```

Simply store the current IR in the 'output' file.

## Module process

### error

```
error(msg)
```

Write an error message and exit.

### process

```
process(argv = sys.argv, commands)
```

Accept a set of commands and process according to command line options. The typical call will start with the name of the processor to be executed, followed by a set of parameters, followed by non-parameter arguments. All parameters are either of the form 'name=value', or '--name=value'. The first form expects 'value' to be valid python, the second a string. The remaining non-parameter arguments are associated with the 'input' parameter. Once this initialization is done, the named command's 'process' method is executed.

# ASG Processors

## Modules

- AccessRestrictor
- Comments
- Linker
- MacroFilter
- ModuleFilter

- ModuleSorter
- NameMapper
- SXRCompiler
- ScopeStripper
- TemplateLinker
- Transformer
- TypeMapper
- TypedefFolder

## Module AccessRestrictor

### class AccessRestrictor

```
AccessRestrictor.AccessRestrictor
```

This class processes declarations, and removes those that need greater access than the maximum passed to the constructor

#### scopestack

```
_scopestack
```

#### currscope

```
_currscope
```

#### **access**

```
access
```

#### init

```
__init__(self, kwds)
```

#### **process**

```
process(self, ir, kwds)
```

#### **push**

```
push(self)
```

#### **pop**

```
pop(self, decl)
```

**add**

```
add(self, decl)
```

**visit\_declaration**

```
visit_declaration(self, decl)
```

**visit\_scope**

```
visit_scope(self, scope)
```

## Package Comments

### Modules

- Comments.Filter
- Comments.Grouper
- Comments.Previous
- Comments.Translator

## Module Comments.Filter

### class Filter

```
Comments.Filter.Filter
```

Base class for comment filters.

**visit\_builtin**

```
visit_builtin
```

**visit\_sourcefile**

```
visit_sourcefile
```

**process**

```
process(self, ir, kwds)
```

**visit\_declaration**

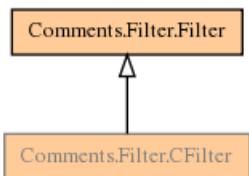
```
visit_declaration(self, decl)
```

**filter\_comment**

```
filter_comment(self, comment)
```

Filter comment.

## class CFilter



A class that filters C-style comments.

### comment

```
comment
```

### line

```
line
```

### \_\_init\_\_

```
__init__(self, kwds)
```

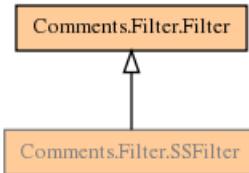
Compiles the regular expressions

### filter\_comment

```
filter_comment(self, comment)
```

Finds comments in the C format. The format is /\* ... \*/. It has to cater for all five line forms: /\* ... », » \* ... », » ... », » \*/ and the one-line /\* ... \*/.

## class SSFilter



A class that selects only // comments.

### ss

```
ss
```

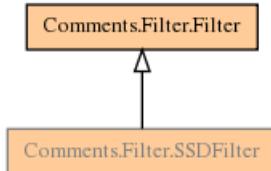
### \_\_init\_\_

```
__init__(self, kwds)
```

Compiles the regular expressions

**filter\_comment**

```
filter_comment(self, comment)
```

**class SSDFilter**

A class that selects only // comments.

**ssd**

```
ssd
```

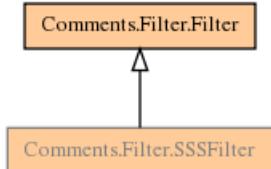
**\_\_init\_\_**

```
__init__(self, kwds)
```

Compiles the regular expressions

**filter\_comment**

```
filter_comment(self, comment)
```

**class SSSFilter**

A class that selects only /// comments.

**sss**

```
sss
```

**\_\_init\_\_**

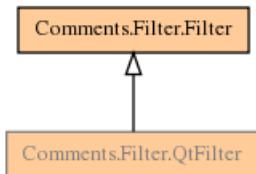
```
__init__(self, kwds)
```

Compiles the regular expressions

**filter\_comment**

```
filter_comment(self, comment)
```

## class QtFilter



A class that finds Qt style comments. These have two styles: `//! ...` and `/*! ... */`. The first means "brief comment" and there must only be one. The second type is the detailed comment.

### brief

```
brief
```

### detail

```
detail
```

### \_\_init\_\_

```
__init__(self, kwds)
```

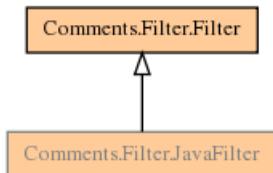
Compiles the regular expressions

### filter\_comment

```
filter_comment(self, comment)
```

Matches either brief or detailed comments.

## class JavaFilter



A class that selects java `/**` style comments

### java

```
java
```

### line

```
line
```

### \_\_init\_\_

```
__init__(self)
```

Compiles the regular expressions

### **filter\_comment**

```
filter_comment(self, comment)
```

Finds comments in the java format. The format is `/** ... */`, and it has to cater for all four line forms: `/* ... */`, `/* * ... */`, `/* */` and the one-line `/*...*/`.

## **Module Comments.Grouper**

### **class Grouper**

```
Comments.Grouper.Grouper
```

A class that detects grouping tags and moves the enclosed nodes into a subnode (a 'Group')

#### **\_\_group\_stack**

```
__group_stack
```

#### **tags**

```
tags
```

#### **\_\_init\_\_**

```
__init__(self, kwds)
```

#### **strip\_dangling\_groups**

```
strip_dangling_groups(self)
```

As groups must not overlap with 'real' scopes, make sure all groups created in the current scope are closed when leaving the scope.

#### **finalize**

```
finalize(self)
```

replace the ASG with the newly created one

#### **push**

```
push(self)
```

starts a new group stack to be able to validate group scopes

#### **pop**

```
pop(self, decl)
```

Make sure the current group stack is empty.

**push\_group**

```
push_group(self, group)
```

Push new group scope to the stack.

**pop\_group**

```
pop_group(self, decl = None)
```

Pop a group scope from the stack. decl -- an optional declaration from which to extract the context, used for the error message if needed.

**process\_comments**

```
process_comments(self, decl)
```

Checks for grouping tags. If an opening tag is found in the middle of a comment, a new Group is generated, the preceding comments are associated with it, and is pushed onto the scope stack as well as the groups stack.

**visit\_declaration**

```
visit_declaration(self, decl)
```

**visit\_scope**

```
visit_scope(self, scope)
```

Visits all children of the scope in a new scope. The value of current\_scope() at the end of the list is used to replace scope's list of declarations - hence you can remove (or insert) declarations from the list.

**visit\_enum**

```
visit_enum(self, enum)
```

Does the same as visit\_scope, but for the enum's list of enumerators

**visit\_enumerator**

```
visit_enumerator(self, enumor)
```

Removes dummy enumerators

## Module Comments.Previous

### class Previous

Comments.Previous.Previous

A class that maps comments that begin with '<' to the previous declaration

**process**

```
process(self, ir, kwds)
```

decorates process() to initialise last and laststack

**push**

```
push(self)
```

decorates push() to also push 'last' onto 'laststack'

**pop**

```
pop(self)
```

decorates pop() to also pop 'last' from 'laststack'

**visit\_scope**

```
visit_scope(self, scope)
```

overrides visit\_scope() to set 'last' after each declaration

**visit\_declaration**

```
visit_declaration(self, decl)
```

**visit\_builtin**

```
visit_builtin(self, decl)
```

**visit\_enum**

```
visit_enum(self, enum)
```

Does the same as visit\_scope but for enum and enumerators

**visit\_enumerator**

```
visit_enumerator(self, enumor)
```

Checks previous comment and removes dummies

**process\_comments**

```
process_comments(self, decl)
```

Checks a decl to see if the comment should be moved. If the comment begins with a less-than sign, then it is moved to the 'last' declaration

## Module Comments.Translator

### class Translator

```
Comments.Translator.Translator
```

A Translator translates comments into documentation.

#### filter

```
filter
```

#### processor

```
processor
```

#### markup

```
markup
```

#### concatenate

```
concatenate
```

#### primary\_only

```
primary_only
```

#### process

```
process(self, ir, kwds)
```

#### visit\_declaration

```
visit_declaration(self, decl)
```

Map comments to a doc string.

#### visit\_sourcefile

```
visit_sourcefile(self, sf)
```

Map comments to a doc string.

## Module Linker

### class Linker

```
Linker.Linker
```

Visitor that removes duplicate declarations

**remove\_empty\_modules**

```
remove_empty_modules
```

**sort\_modules**

```
sort_modules
```

**sxr\_prefix**

```
sxr_prefix
```

**visit\_declaration**

```
visit_declaration
```

**visit\_using\_declaration**

```
visit_using_declaration
```

**visit\_forward**

```
visit_forward
```

**visit\_enum**

```
visit_enum
```

**visit\_operation**

```
visit_operation
```

**process**

```
process(self, ir, kwds)
```

**lookup**

```
lookup(self, name)
```

look whether the current scope already contains a declaration with the given name

**append**

```
append(self, declaration)
```

append declaration to the current scope

**push**

```
push(self, scope)
```

push new scope on the stack

**pop**

```
pop(self)
```

restore the previous scope

**top**

```
top(self)
```

**top\_dict**

```
top_dict(self)
```

**link\_type**

```
link_type(self, type)
```

Returns the same or new proxy type

**visit\_builtin\_type\_id**

```
visit_builtin_type_id(self, type)
```

**visit\_unknown\_type\_id**

```
visit_unknown_type_id(self, type)
```

**visit\_declared\_type\_id**

```
visit_declared_type_id(self, type)
```

**visit\_template\_id**

```
visit_template_id(self, type)
```

**visit\_modifier\_type\_id**

```
visit_modifier_type_id(self, type)
```

**visit\_array\_type\_id**

```
visit_array_type_id(self, type)
```

**visit\_parametrized\_type\_id**

```
visit_parametrized_type_id(self, type)
```

**visit\_function\_type\_id**

```
visit_function_type_id(self, type)
```

**visit\_source\_file**

```
visit_source_file(self, file)
```

Resolves any duplicates in the list of declarations from this file

**visit\_module**

```
visit_module(self, module)
```

**visit\_group**

```
visit_group(self, group)
```

**merge\_comments**

```
merge_comments(self, metamodule, module)
```

Append the module comments into the metamodule.

**visit\_meta\_module**

```
visit_meta_module(self, module)
```

**add\_declaration**

```
add_declaration(self, decl)
```

Adds a declaration to the current (top) scope. If there is already a Forward declaration, then this replaces it unless this is also a Forward.

**visit\_builtin**

```
visit_builtin(self, builtin)
```

preserve builtins unconditionally

**visit\_named\_type**

```
visit_named_type(self, decl)
```

**visit\_function**

```
visit_function(self, func)
```

**visit\_variable**

```
visit_variable(self, var)
```

**visit\_typedef**

```
visit_typedef(self, tdef)
```

**visit\_class**

```
visit_class(self, class_)
```

**visit\_inheritance**

```
visit_inheritance(self, parent)
```

**visit\_parameter**

```
visit_parameter(self, param)
```

**visit\_const**

```
visit_const(self, const)
```

## Module MacroFilter

**class MacroFilter**

```
MacroFilter.MacroFilter
```

A MacroFilter allows macros to be filtered, based on pattern matching. Macros with matching names will be removed.

**pattern**

```
pattern
```

**process**

```
process(self, ir, kwds)
```

**visit\_macro**

```
visit_macro(self, node)
```

## Module ModuleFilter

**class ModuleFilter**

```
ModuleFilter.ModuleFilter
```

A processor that filters modules.

**modules**

```
modules
```

**remove\_empty**

```
remove_empty
```

**visit\_builtin**

```
visit_builtin
```

**visit\_group**

```
visit_group
```

**visit\_scope**

```
visit_scope
```

**visit\_enum**

```
visit_enum
```

**process**

```
process(self, ir, kwds)
```

**push**

```
push(self)
```

Pushes the current scope onto the stack and starts a new one

**pop**

```
pop(self, decl)
```

Pops the current scope from the stack, and appends the given declaration to it

**pop\_only**

```
pop_only(self)
```

Only pops, doesn't append to scope

**add**

```
add(self, decl)
```

Adds the given decl to the current scope

**visit\_declarator**

```
visit_declarator(self, decl)
```

Adds declaration to scope

**visit\_module**

```
visit_module(self, module)
```

Visits all children of the module, and if there are no declarations after that removes the module

## Module ModuleSorter

### class ModuleSorter

```
ModuleSorter.ModuleSorter
```

A processor that sorts declarations in a module alphabetically.

#### process

```
process(self, ir, kwds)
```

#### visit\_meta\_module

```
visit_meta_module(self, module)
```

Visits all children of the module, and if there are no declarations after that removes the module

## Module NameMapper

### class NameMapper

```
NameMapper.NameMapper
```

Abstract base class for name mapping.

#### visit\_scope

```
visit_scope(self, node)
```

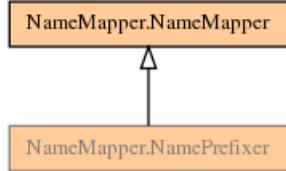
Recursively visits declarations under this scope.

#### visit\_group

```
visit_group(self, node)
```

Recursively visits declarations under this group.

### class NamePrefixer



This class adds a prefix to all declaration and type names.

#### prefix

```
prefix
```

**type**

```
type
```

**process**

```
process(self, ir, kwds)
```

**visit\_declaration**

```
visit_declaration(self, decl)
```

Changes the name of this declaration and its associated type

## Module SXRCompiler

### class SXRCompiler

```
SXRCompiler.SXRCompiler
```

This class compiles symbol references stored in sxr files into a single symbol table.

**prefix**

```
prefix
```

**no\_locals**

```
no_locals
```

**process**

```
process(self, ir, kwds)
```

**compile**

```
compile(self, filename, language)
```

## Module ScopeStripper

### class ScopeStripper

```
ScopeStripper.ScopeStripper
```

Strip common prefix from the declaration's name. Keep a list of root nodes, such that children whose parent scopes are not accepted but which themselves are correct can be maintained as new root nodes.

**declarations**

```
declarations
```

**inside**

```
inside
```

**\_scope**

```
_scope
```

**scope**

```
scope
```

**\_\_init\_\_**

```
__init__(self, kwds)
```

**process**

```
process(self, ir, kwds)
```

**strip\_name**

```
strip_name(self, name)
```

**strip\_declarations**

```
strip_declarations(self, declarations)
```

**strip\_types**

```
strip_types(self, types)
```

**strip**

```
strip(self, declaration)
```

test whether the declaration matches one of the prefixes, strip it off, and return success. Success means that the declaration matches the prefix set and thus should not be removed from the ASG.

**visit\_scope**

```
visit_scope(self, scope)
```

**visit\_class**

```
visit_class(self, class_)
```

**visit\_class\_template**

```
visit_class_template(self, class_)
```

**visit\_declaration**

```
visit_declaration(self, decl)
```

**visit\_enumerator**

```
visit_enumerator(self, enumerator)
```

**visit\_enum**

```
visit_enum(self, enum)
```

**visit\_function**

```
visit_function(self, function)
```

**visit\_parameter**

```
visit_parameter(self, parameter)
```

**visit\_function\_template**

```
visit_function_template(self, function)
```

**visit\_operation**

```
visit_operation(self, operation)
```

**visit\_operation\_template**

```
visit_operation_template(self, operation)
```

**visit\_meta\_module**

```
visit_meta_module(self, module)
```

## Module TemplateLinker

### class TemplateLinker

```
TemplateLinker.TemplateLinker
```

Link template specializations to their primary templates, and vice versa.

**visit\_forward**

```
visit_forward
```

**visit\_class**

```
visit_class
```

**visit\_class\_template**

```
visit_class_template
```

**process**

```
process(self, ir, kwds)
```

**link**

```
link(self, d)
```

## Module Transformer

### class Transformer

Transformer.Transformer

A class that creates a new ASG from an old one. This is a helper base for more specialized classes that manipulate the ASG based on the comments in the nodes

**\_\_scopes**

```
__scopes
```

**\_\_current**

```
__current
```

**\_\_init\_\_**

```
__init__(self, kwds)
```

Constructor

**process**

```
process(self, ir, kwds)
```

**finalize**

```
finalize(self)
```

replace the ASG with the newly created one

**push**

```
push(self)
```

Pushes the current scope onto the stack and starts a new one

**pop**

```
pop(self, decl)
```

Pops the current scope from the stack, and appends the given declaration to it

**add**

```
add(self, decl)
```

Adds the given decl to the current scope

**current\_scope**

```
current_scope(self)
```

Returns the current scope: a list of declarations

**visit\_builtin**

```
visit_builtin(self, decl)
```

## Module TypeMapper

**class TypeMapper**

```
TypeMapper.TypeMapper
```

Base class for type mapping

**process**

```
process(self, ir, kwds)
```

## Module TypedefFolder

**class TypedefFolder**

```
TypedefFolder.TypedefFolder
```

Fold (anonymous) types into enclosing typedefs.

**anonymous\_only**

```
anonymous_only
```

**visit\_group**

```
visit_group
```

**process**

```
process(self, ir, kwds)
```

**visit\_scope**

```
visit_scope(self, s)
```

**visit\_typedef**

```
visit_typedef(self, t)
```

# Parsers

## Packages

- C
- Cpp
- Cxx
- IDL
- Python

## Package C

### Packages

- C.C

## Package C.C

### class Parser

```
C.C.Parser
```

### preprocess

```
preprocess
```

### emulate\_compiler

```
emulate_compiler
```

### compiler\_flags

```
compiler_flags
```

### cppflags

```
cppflags
```

### primary\_file\_only

```
primary_file_only
```

**base\_path**

```
base_path
```

**sxr\_prefix**

```
sxr_prefix
```

**process**

```
process(self, ir, kwds)
```

## Package Cpp

### Packages

- Cpp.Cpp
- Cpp.Emulator

## Package Cpp.Cpp

### class Parser

```
Cpp.Cpp.Parser
```

### emulate\_compiler

```
emulate_compiler
```

### compiler\_flags

```
compiler_flags
```

### flags

```
flags
```

### primary\_file\_only

```
primary_file_only
```

### cpp\_output

```
cpp_output
```

### base\_path

```
base_path
```

**language**

```
language
```

**probe**

```
probe(self, kwds)
```

**process**

```
process(self, ir, kwds)
```

## Module Cpp.Emulator

**\_\_docformat\_\_**

```
__docformat__
```

**class TempFile****\_\_del\_\_**

```
__del__(self)
```

**name**

```
name
```

**file**

```
file
```

**\_\_init\_\_**

```
__init__(self, suffix)
```

**class CompilerInfo**

Info about one compiler.

**\_write**

```
_write(self, os)
```

**compiler**

```
compiler
```

The name of the compiler, typically the executable name, which must either be in the path or given as an absolute, pathname.

**flags**

```
flags
```

Compiler flags that impact its characteristics.

**language**

```
language
```

The programming language the compiler is used for.

**kind**

```
kind
```

A string indicating the type of this info: one of 'system', 'custom', ". 'custom' compilers will never be automatically updated, and an empty string indicates a failure to look up the given compiler.

**timestamp**

```
timestamp
```

The timestamp of the compiler binary.

**include\_paths**

```
include_paths
```

A list of strings indicating the include paths.

**macros**

```
macros
```

A list of (name,value) pairs. Values may be empty, or None. The latter case indicates that the macro is to be undefined.

**class CompilerList**

```
CppClass.Emulator.CompilerList
```

**\_query**

```
_query(self, language, compiler, flags)
```

Construct and return a `CompilerInfo` object for the given compiler.

**compilers**

```
compilers
```

**no\_cache**

```
no_cache
```

**user\_emulations\_file**

```
user_emulations_file
```

The cache file.

**\_\_init\_\_**

```
__init__(self, filename = '')
```

**list**

```
list(self)
```

**add\_default\_compilers**

```
add_default_compilers(self)
```

**load**

```
load(self, filename = '')
```

Loads the compiler infos from a file.

**save**

```
save(self, filename = '')
```

**refresh**

```
refresh(self)
```

Refreshes the compiler list. Regenerate all non-custom compilers without destroying custom compilers.

**find**

```
find(self, language, compiler, flags)
```

**find\_ms\_compiler\_info**

```
find_ms_compiler_info()
```

Try to find a (C++) MSVC compiler. Return tuple of include path list and macro dictionary.

**find\_gcc\_compiler\_info**

```
find_gcc_compiler_info(language, compiler, flags)
```

Try to find a GCC-based C or C++ compiler. Return tuple of include path list and macro dictionary.

## find\_compiler\_info

```
find_compiler_info(language, compiler, flags)
```

## get\_compiler\_timestamp

```
get_compiler_timestamp(compiler)
```

Returns the timestamp for the given compiler, or 0 if not found

## get\_compiler\_info

```
get_compiler_info(language, compiler = '', flags = None)
```

Returns the compiler info for the given compiler. If none is specified (""), return the first available one for the given language. The info is returned as a CompilerInfo object, or None if the compiler isn't found.

## compiler\_list

```
compiler_list
```

# Package Cxx

## Packages

- Cxx.Cxx

# Package Cxx.Cxx

## class Parser

```
Cxx.Cxx.Parser
```

## preprocess

```
preprocess
```

## emulate\_compiler

```
emulate_compiler
```

## compiler\_flags

```
compiler_flags
```

## cppflags

```
cppflags
```

**primary\_file\_only**

```
primary_file_only
```

**base\_path**

```
base_path
```

**sxr\_prefix**

```
sxr_prefix
```

**process**

```
process(self, ir, kwds)
```

## Package IDL

### Packages

- IDL.IDL
- IDL.idlast
- IDL.idltype
- IDL.idlutil
- IDL.idlvisitor
- IDL.omni

## Package IDL.IDL

### class Parser

```
IDL.IDL.Parser
```

### preprocess

```
preprocess
```

### cppflags

```
cppflags
```

### primary\_file\_only

```
primary_file_only
```

### base\_path

```
base_path
```

**process**

```
process(self, ir, kwds)
```

## Module IDL.idlast

### class AST

Class for top-level Abstract Syntax Tree. Functions: file() -- the file name of the main IDL file. declarations() -- list of Decl objects corresponding to declarations at file scope. pragmas() -- list of Pragma objects containing #pragmas which occurred before any declarations. Later #pragmas are attached to Decl objects. comments() -- list of Comment objects containing comments which occurred before any declarations. accept(visitor) -- visitor pattern accept. See idlvisitor.py.

#### file

```
_file
```

#### declarations

```
_declarations
```

#### pragmas

```
_pragmas
```

#### comments

```
_comments
```

#### init

```
__init__(self, file, declarations, pragmas, comments)
```

### file

```
file(self)
```

### declarations

```
declarations(self)
```

### pragmas

```
pragmas(self)
```

### comments

```
comments(self)
```

### accept

```
accept(self, visitor)
```

## class Decl

Base class for all declarations. Functions: file() -- the IDL file this declaration came from. line() -- the line number within the file. mainFile() -- boolean: true if the file was the main IDL file; false if it was an included file. pragmas() -- list of Pragma objects containing #pragmas which immediately followed this declaration. comments() -- list of Comment objects containing comments which immediately followed this declaration. fullDecl() -- the 'full' Decl for typedefs, forwards, etc. accept(visitor) -- visitor pattern accept. See idlvisitor.py.

### file

```
file
```

### line

```
line
```

### mainFile

```
mainFile
```

### builtIn

```
builtIn
```

### pragmas

```
pragmas
```

### comments

```
comments
```

### init

```
init__(self, file, line, mainFile, pragmas, comments)
```

## accept

```
accept(self, visitor)
```

### **file**

```
file(self)
```

### **line**

```
line(self)
```

### **mainFile**

```
mainFile(self)
```

**builtin**

```
builtIn(self)
```

**pragmas**

```
pragmas(self)
```

**comments**

```
comments(self)
```

**fullDecl**

```
fullDecl(self)
```

**class DeclRepoId**

Mixin class for Decls which have a Repository Id Functions: identifier() -- name of the declaration as a string scopedName() -- list of strings forming the fully-scoped name of the declaration. e.g. ::foo::bar::baz is represented as ['foo', 'bar', 'baz']. repoId() -- repository identifier for this declaration.

**\_\_identifier**

```
identifier
```

**\_\_scopedName**

```
scopedName
```

**\_\_repoId**

```
repoId
```

**\_\_init\_\_**

```
__init__(self, identifier, scopedName, repoId)
```

**identifier**

```
identifier(self)
```

**scopedName**

```
scopedName(self)
```

**repoId**

```
repoId(self)
```

**class Pragma**

Class containing information about an unknown pragma Functions: text() -- text of the pragma \_\_str\_\_() -- same as text() file() -- file containing the pragma line() -- line number in file

**\_\_text**

```
__text
```

**\_\_file**

```
__file
```

**\_\_line**

```
__line
```

**\_\_init\_\_**

```
__init__(self, text, file, line)
```

**text**

```
text(self)
```

**\_\_str\_\_**

```
__str__(self)
```

**file**

```
file(self)
```

**line**

```
line(self)
```

**class Comment**

Class containing information about a comment Functions: text() -- text of the comment \_\_str\_\_() -- same as text() file() -- file containing the comment line() -- line number in file

**\_\_text**

```
__text
```

**\_\_file**

```
__file
```

**\_\_line**

```
__line
```

**\_\_init\_\_**

```
__init__(self, text, file, line)
```

**text**

```
text(self)
```

**\_\_str\_\_**

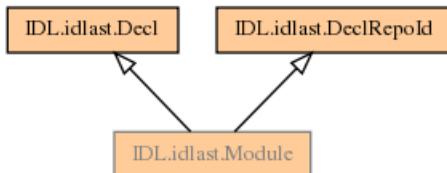
```
__str__(self)
```

**file**

```
file(self)
```

**line**

```
line(self)
```

**class Module**

Module declaration (Decl, DeclRepoid) Functions: definitions() -- list of Decl objects declared within this module. continuations() -- list containing continuations of this module. When modules are re-opened, multiple Module objects with the same name appear in the enclosing Module or AST object. In case it's useful, the first Module object for a particular module has a list containing continuations of that module. You will probably not have any use for this.

**\_\_definitions**

```
__definitions
```

**\_continuations**

```
_continuations
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, definitions)
```

**accept**

```
accept(self, visitor)
```

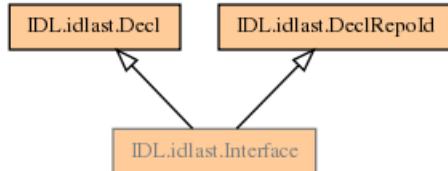
**definitions**

```
definitions(self)
```

## continuations

```
continuations(self)
```

## class Interface



Interface declaration (Decl, DeclRepoId) Functions: abstract() -- boolean: true if the interface is declared abstract. local() -- boolean: true if the interface is declared local. inherits() -- list of Interface objects from which this one inherits. contents() -- list of Decl objects for all items declared within this interface. declarations() -- subset of contents() containing types, constants and exceptions. callables() -- subset of contents() containing Operations and Attributes. all\_callables()-- callables of this and inherited interfaces.

### setContents

```
_setContents(self, contents)
```

### abstract

```
_abstract
```

### local

```
_local
```

### inherits

```
_inherits
```

### contents

```
_contents
```

### declarations

```
_declarations
```

### callables

```
_callables
```

### init

```
_init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, abstract, local, inherits)
```

**accept**

```
accept(self, visitor)
```

**abstract**

```
abstract(self)
```

**local**

```
local(self)
```

**inherits**

```
inherits(self)
```

**contents**

```
contents(self)
```

**declarations**

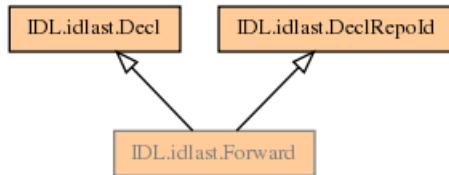
```
declarations(self)
```

**callables**

```
callables(self)
```

**all\_callables**

```
all_callables(self)
```

**class Forward**

Forward-declared interface (Decl, DeclRepoId) Functions: abstract() -- boolean: true if the interface is declared abstract. local() -- boolean: true if the interface is declared local. fullDecl() -- Interface object corresponding to full interface declaration or None if there is no full declaration.

**abstract**

```
abstract
```

**local**

```
local
```

**\_fullDecl**

```
_fullDecl
```

**\_more**

```
_more
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, abstract, local)
```

**accept**

```
accept(self, visitor)
```

**abstract**

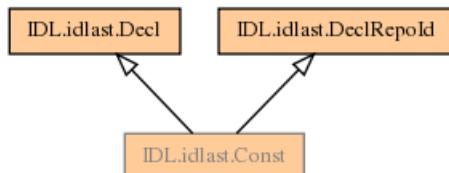
```
abstract(self)
```

**local**

```
local(self)
```

**fullDecl**

```
fullDecl(self)
```

**class Const**

Constant declaration (Decl, DeclRepoid) Functions: constType() -- IdlType.Type object of this constant. Aliases not stripped. constKind() -- TypeCode kind of constant with aliases stripped. value() -- value of the constant. Either an integer or an Enumerator object.

**\_\_constType**

```
__constType
```

**\_\_constKind**

```
__constKind
```

**\_\_value**

```
__value
```

**\_init\_**

```
_init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, constType, constKind, value)
```

**accept**

```
accept(self, visitor)
```

**constType**

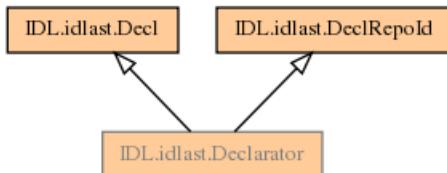
```
constType(self)
```

**constKind**

```
constKind(self)
```

**value**

```
value(self)
```

**class Declarator**

Declarator used in typedefs, struct members, etc. (Decl, DeclRepId) Functions: sizes() -- list of array sizes, or None if this is a simple declarator. alias() -- Typedef object for this declarator if this is a typedef declarator. None otherwise.

**\_setAlias**

```
_setAlias(self, alias)
```

**\_sizes**

```
_sizes
```

**\_alias**

```
_alias
```

**\_init\_**

```
_init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, sizes)
```

**accept**

```
accept(self, visitor)
```

**sizes**

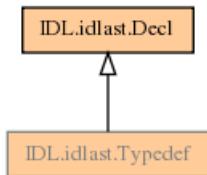
```
sizes(self)
```

**alias**

```
alias(self)
```

**fullDecl**

```
fullDecl(self)
```

**class Typedef**

Typedef (Decl) Functions: aliasType() -- IdlType.Type object that this is an alias to. constrType() -- boolean: true if the alias type was constructed within this typedef declaration. declarators() -- list of Declarator objects.

**\_\_aliasType**

```
__aliasType
```

**\_\_constrType**

```
__constrType
```

**\_\_declarators**

```
__declarators
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, aliasType, \
constrType, declarators)
```

**accept**

```
accept(self, visitor)
```

**aliasType**

```
aliasType(self)
```

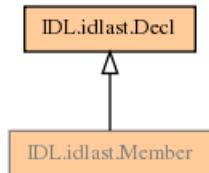
**constrType**

```
constrType(self)
```

## declarators

```
declarators(self)
```

## class Member



Member of a struct or exception (Decl) Functions: memberType() -- IdlType.Type object for the type of this member. constrType() -- boolean: true if the member type was constructed within the member declaration. declarators() -- list of Declarator objects.

### memberType

```
memberType
```

### constrType

```
constrType
```

### declarators

```
declarators
```

### init

```
__init__(self, file, line, mainFile, pragmas, comments, memberType, \
constrType, declarators)
```

## accept

```
accept(self, visitor)
```

## memberType

```
memberType(self)
```

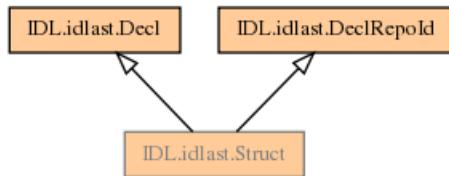
## constrType

```
constrType(self)
```

## declarators

```
declarators(self)
```

## class Struct



Struct declaration (Decl, DeclRepoId) Functions: members() -- list of Member objects for the struct contents.  
recursive() -- boolean: true if the struct is recursive.

### setMembers

```
setMembers(self, members)
```

### recursive

```
recursive
```

### init

```
init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, recursive)
```

### accept

```
accept(self, visitor)
```

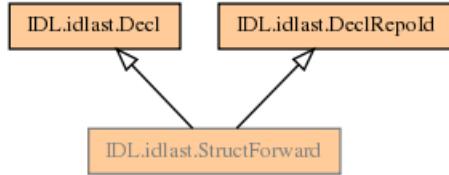
### members

```
members(self)
```

### recursive

```
recursive(self)
```

## class StructForward



Struct forward declaration (Decl, DeclRepoId) Functions: fullDecl() -- full definition of the struct.

### fullDecl

```
fullDecl
```

### more

```
more
```

**\_\_init\_\_**

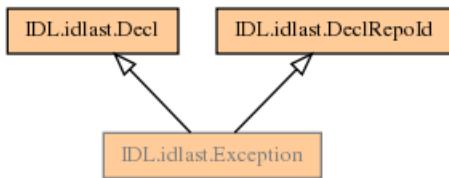
```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId)
```

**accept**

```
accept(self, visitor)
```

**fullDecl**

```
fullDecl(self)
```

**class Exception**

Exception declaration (Decl, DeclRepoId) Function: members() -- list of Member objects for the exception contents.

**members**

```
members
```

**\_\_init\_\_**

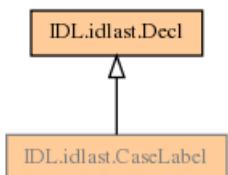
```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, members)
```

**accept**

```
accept(self, visitor)
```

**members**

```
members(self)
```

**class CaseLabel**

Case label within a union (Decl) Functions: default() -- boolean: true if this is the default label. value() -- label value. Either an integer or an Enumerator object. If default() is true, returns a value used by none of the other union labels. labelKind() -- TypeCode kind of label.

**default**

```
_default
```

**value**

```
_value
```

**labelKind**

```
_labelKind
```

**init**

```
_init__(self, file, line, mainFile, pragmas, comments, default, value, \
labelKind)
```

**accept**

```
accept(self, visitor)
```

**default**

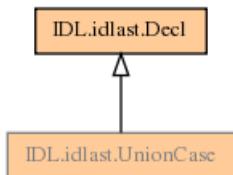
```
default(self)
```

**value**

```
value(self)
```

**labelKind**

```
labelKind(self)
```

**class UnionCase**

One case within a union (Decl) Functions: labels() -- list of CaseLabel objects. caseType() -- IdlType.Type object for the case type. constrType() -- boolean: true if the case type was constructed within the case. declarator() -- Declarator object

**labels**

```
_labels
```

**caseType**

```
_caseType
```

**\_\_constrType**

```
__constrType
```

**\_\_declarator**

```
__declarator
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, labels, \
caseType, constrType, declarator)
```

**accept**

```
accept(self, visitor)
```

**labels**

```
labels(self)
```

**caseType**

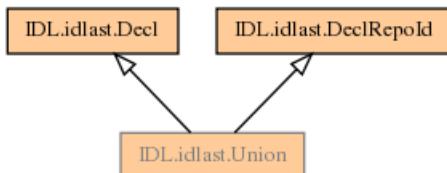
```
caseType(self)
```

**constrType**

```
constrType(self)
```

**declarator**

```
declarator(self)
```

**class Union**

Union declaration (Decl, DeclRepOld) Functions: switchType() -- IdlType.Type object corresponding to the switch type. constrType() -- boolean: true if the switch type was declared within the switch statement. Only possible for Enums. cases() -- list of UnionCase objects. recursive() -- boolean: true if the union is recursive.

**\_setCases**

```
_setCases(self, cases)
```

**\_switchType**

```
_switchType
```

**\_\_constrType**

```
__constrType
```

**\_\_recursive**

```
__recursive
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, switchType, constrType, recursive)
```

**accept**

```
accept(self, visitor)
```

**switchType**

```
switchType(self)
```

**constrType**

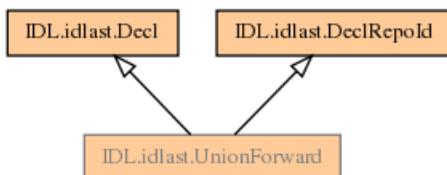
```
constrType(self)
```

**cases**

```
cases(self)
```

**recursive**

```
recursive(self)
```

**class UnionForward**

Union forward declaration (Decl, DeclRepOld) Functions: fullDecl() -- full definition of the union.

**\_fullDecl**

```
_fullDecl
```

**\_more**

```
_more
```

**\_\_init\_\_**

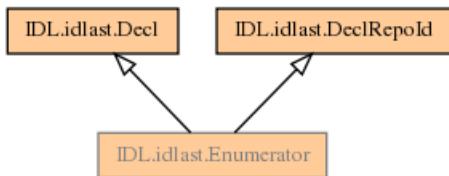
```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId)
```

**accept**

```
accept(self, visitor)
```

**fullDecl**

```
fullDecl(self)
```

**class Enumerator**

Enumerator of an Enum (Decl, DeclRepoId) Function: value() -- integer value of enumerator, as marshalled.

**value**

```
value
```

**\_\_init\_\_**

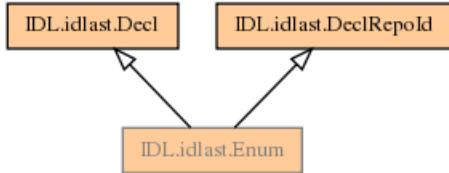
```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, value)
```

**accept**

```
accept(self, visitor)
```

**value**

```
value(self)
```

**class Enum**

Enum declaration (Decl, DeclRepoId) Function: enumerators() -- list of Enumerator objects.

**enumerators**

```
enumerators
```

**\_\_init\_\_**

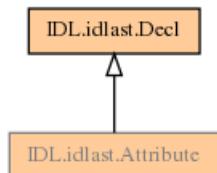
```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, enumerators)
```

**accept**

```
accept(self, visitor)
```

**enumerators**

```
enumerators(self)
```

**class Attribute**

Attribute declaration (Decl) Functions: `readonly()` -- boolean: true if the attribute is read only. `attrType()` -- IdlType.Type object for the attribute's type. `declarators()` -- list of the attribute's declarators. `identifiers()` -- list of strings containing the attribute identifiers (equivalent to the identifiers inside the declarators).

**\_\_readonly**

```
__readonly
```

**\_\_attrType**

```
__attrType
```

**\_\_declarators**

```
__declarators
```

**\_\_identifiers**

```
__identifiers
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, readonly, \
attrType, declarators)
```

**accept**

```
accept(self, visitor)
```

**readonly**

```
readonly(self)
```

**attrType**

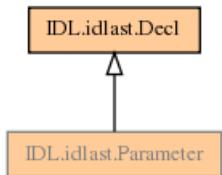
```
attrType(self)
```

**declarators**

```
declarators(self)
```

**identifiers**

```
identifiers(self)
```

**class Parameter**

A Parameter of an operation or factory specifier (Decl) Functions: direction() -- integer: 0 == in, 1 == out, 2 == inout. is\_in() -- boolean: true if in or inout. is\_out() -- boolean: true if out or inout. paramType() -- IdlType.Type object for the parameter type. identifier() -- string of parameter identifier.

**direction**

```
_direction
```

**is\_in**

```
_is_in
```

**is\_out**

```
_is_out
```

**paramType**

```
_paramType
```

**identifier**

```
_identifier
```

**init**

```
__init__(self, file, line, mainFile, pragmas, comments, direction, \
paramType, identifier)
```

**accept**

```
accept(self, visitor)
```

**direction**

```
direction(self)
```

**is\_in**

```
is_in(self)
```

**is\_out**

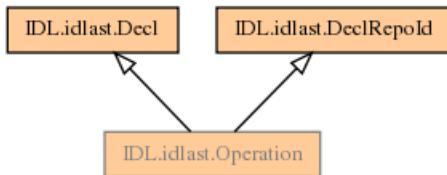
```
is_out(self)
```

**paramType**

```
paramType(self)
```

**identifier**

```
identifier(self)
```

**class Operation**

Operation declaration (Decl, DeclRepoId) Functions: oneway() -- boolean: true if operation is one way. returnType() -- IdlType.Type object for return type. parameters() -- list of Parameter objects. raises() -- list of Exception objects. contexts() -- list of strings for context expressions.

**\_\_oneway**

```
__oneway
```

**\_\_returnType**

```
__returnType
```

**\_\_parameters**

```
__parameters
```

**\_\_raises**

```
__raises
```

**\_\_contexts**

```
__contexts
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, oneway, \
returnType, identifier, scopedName, repoId, parameters, raises, contexts)
```

**accept**

```
accept(self, visitor)
```

**oneway**

```
oneway(self)
```

**returnType**

```
returnType(self)
```

**parameters**

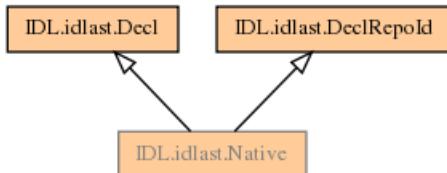
```
parameters(self)
```

**raises**

```
raises(self)
```

**contexts**

```
contexts(self)
```

**class Native**

Native declaration (Decl, DeclRepoid) Native should not be used in normal IDL. No non-inherited functions.

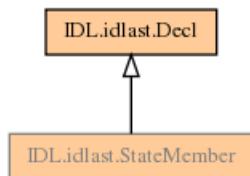
**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId)
```

**accept**

```
accept(self, visitor)
```

## class StateMember



State member of a valuetype (Decl) Functions: memberAccess() -- integer: 0 == public, 1 == private. memberType() -- IdlType.Type object for member type. constrType() -- boolean: true if member type is declared within the StateMember. declarators() -- list of Declarator objects.

### memberAccess

```
memberAccess
```

### memberType

```
memberType
```

### constrType

```
constrType
```

### declarators

```
declarators
```

### init

```
__init__(self, file, line, mainFile, pragmas, comments, memberAccess, \
memberType, constrType, declarators)
```

### accept

```
accept(self, visitor)
```

### memberAccess

```
memberAccess(self)
```

### memberType

```
memberType(self)
```

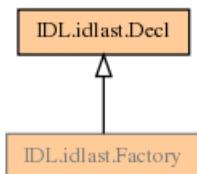
### constrType

```
constrType(self)
```

### declarators

```
declarators(self)
```

## class Factory



Factory method of valuetype (Decl) Functions: identifier() -- string, parameters() -- list of Parameter objects, raises() -- list of Exception objects.

### identifier

```
    identifier
```

### parameters

```
    parameters
```

### raises

```
    raises
```

### init

```
    __init__(self, file, line, mainFile, pragmas, comments, identifier, \
parameters, raises)
```

## accept

```
    accept(self, visitor)
```

## identifier

```
    identifier(self)
```

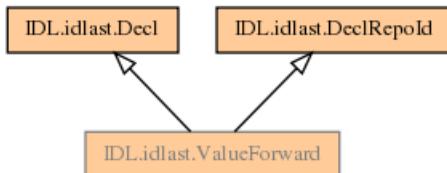
## parameters

```
    parameters(self)
```

## raises

```
    raises(self)
```

## class ValueForward



Forward declared valuetype (Decl, DeclRepoId) Function: abstract() -- boolean: true if declared abstract.  
fullDecl() -- Value or ValueAbs object corresponding to the full valuetype declaration or None if there is no full declaration.

### **abstract**

```
_abstract
```

### **fullDecl**

```
_fullDecl
```

### **more**

```
_more
```

### **\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, abstract)
```

### **accept**

```
accept(self, visitor)
```

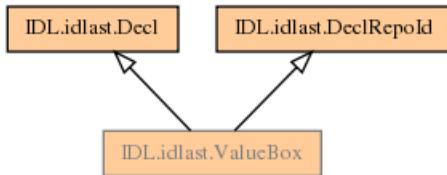
### **abstract**

```
abstract(self)
```

### **fullDecl**

```
fullDecl(self)
```

## **class ValueBox**



ValueBox declaration (Decl, DeclRepoId) Functions: boxedType() -- IdlType.Type object for boxed type.  
constrType() -- boolean: true if boxed type is declared inside the ValueBox declaration.

### **boxedType**

```
_boxedType
```

### **constrType**

```
_constrType
```

**\_\_init\_\_**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, boxedType, constrType)
```

**accept**

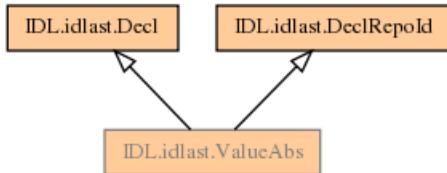
```
accept(self, visitor)
```

**boxedType**

```
boxedType(self)
```

**constrType**

```
constrType(self)
```

**class ValueAbs**

Abstract valuetype declaration (Decl, DeclRepoId) Functions: inherits() -- list of ValueAbs objects from which this inherits. supports() -- list of Interface objects which this supports. contents() -- list of Decl objects for declarations within this valuetype. declarations() -- subset of contents() containing types, constants and exceptions. callables() -- subset of contents() containing Operations and Attributes. statemembers() -- subset of contents() containing StateMembers. factories() -- subset of contents() containing Factory instances.

**setContents**

```
setContents(self, contents)
```

**inherits**

```
inherits
```

**supports**

```
supports
```

**contents**

```
contents
```

**declarations**

```
declarations
```

**callables**

```
callables
```

**statemembers**

```
statemembers
```

**factories**

```
factories
```

**init**

```
__init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoID, inherits, supports)
```

**accept**

```
accept(self, visitor)
```

**inherits**

```
inherits(self)
```

**supports**

```
supports(self)
```

**contents**

```
contents(self)
```

**declarations**

```
declarations(self)
```

**callables**

```
callables(self)
```

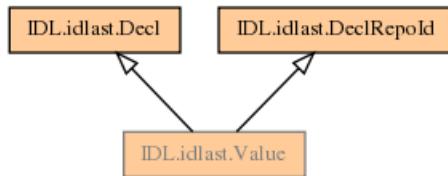
**statemembers**

```
statemembers(self)
```

**factories**

```
factories(self)
```

## class Value



valuetype declaration (Decl, DeclRepoid) Functions: custom() -- boolean: true if declared custom. inherits() -- list of valuetypes from which this inherits. The first may be a Value object or a ValueAbs object; any others will be ValueAbs objects. truncatable() -- boolean: true if the inherited Value is declared truncatable. supports() -- list of Interface objects which this supports. contents() -- list of Decl objects for all items declared within this valuetype. declarations() -- subset of contents() containing types, constants and exceptions. callables() -- subset of contents() containing Operations and Attributes. statemembers() -- subset of contents() containing StateMembers. factories() -- subset of contents() containing Factory instances.

### **\_setContents**

```
_setContents(self, contents)
```

### **\_custom**

```
_custom
```

### **\_inherits**

```
_inherits
```

### **\_truncatable**

```
_truncatable
```

### **\_supports**

```
_supports
```

### **\_contents**

```
_contents
```

### **\_declarations**

```
_declarations
```

### **\_callables**

```
_callables
```

### **\_statemembers**

```
_statemembers
```

**factories**

```
_factories
```

**init\_**

```
_init__(self, file, line, mainFile, pragmas, comments, identifier, \
scopedName, repoId, custom, inherits, truncatable, supports)
```

**accept**

```
accept(self, visitor)
```

**custom**

```
custom(self)
```

**inherits**

```
inherits(self)
```

**truncatable**

```
truncatable(self)
```

**supports**

```
supports(self)
```

**contents**

```
contents(self)
```

**declarations**

```
declarations(self)
```

**callables**

```
callables(self)
```

**statemembers**

```
statemembers(self)
```

**factories**

```
factories(self)
```

**class DeclNotFound**

Exception to indicate that findDecl() could not find the requested Decl object.

**scopedName**

```
__scopedName
```

**init\_**

```
__init__(self, scopedName)
```

**scopedName**

```
scopedName(self)
```

**registerDecl**

```
registerDecl(scopedName, decl)
```

Private function

**findDecl**

```
findDecl(scopedName)
```

findDecl(scopedName) -> Decl Find a Decl object given a fully scoped name represented as a list of strings.  
Raises DeclNotFound if the name is not recognised.

**clear**

```
clear()
```

Clear back-end structures ready for another run

**declMap**

```
declMap
```

**CORBAObject**

```
CORBAObject
```

**CORBAValueBase**

```
CORBAValueBase
```

**CORBAModule**

```
CORBAModule
```

**Module IDL.idltype****class Error**

Exception class used by IdlType internals.

**err**

```
err
```

**\_\_init\_\_**

```
__init__(self, err)
```

**\_\_repr\_\_**

```
__repr__(self)
```

**class Type**

Type abstract class. Function: kind() -- TypeCode kind of type. unalias() -- Return an equivalent Type object with aliases stripped accept(visitor) -- visitor pattern accept. See idlvisitor.py.

**\_\_kind**

```
__kind
```

**\_\_local**

```
__local
```

**\_\_init\_\_**

```
__init__(self, kind, local)
```

**kind**

```
kind(self)
```

**local**

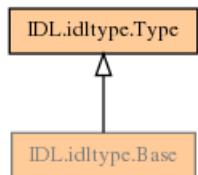
```
local(self)
```

**unalias**

```
unalias(self)
```

**accept**

```
accept(self, visitor)
```

**class Base**

Class for CORBA base types. (Type) No non-inherited functions.

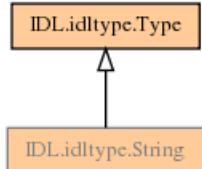
## \_\_init\_\_

```
__init__(self, kind)
```

## **accept**

```
accept(self, visitor)
```

## **class String**



Class for string types (Type) Function: bound() -- bound of bounded string. 0 for unbounded.

## bound

```
bound
```

## \_\_init\_\_

```
__init__(self, bound)
```

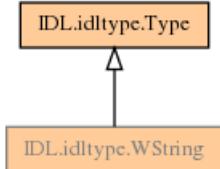
## **accept**

```
accept(self, visitor)
```

## **bound**

```
bound(self)
```

## **class WString**



Class for wide string types (Type) Function: bound() -- bound of bounded wstring. 0 for unbounded.

## bound

```
bound
```

## \_\_init\_\_

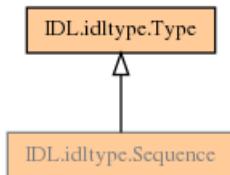
```
__init__(self, bound)
```

**accept**

```
accept(self, visitor)
```

**bound**

```
bound(self)
```

**class Sequence**

Class for sequence types (Type) Functions: seqType() -- Type this is a sequence of. bound() -- bound of bounded sequence. 0 for unbounded.

**seqType**

```
seqType
```

**bound**

```
bound
```

**init**

```
__init__(self, seqType, bound, local)
```

**accept**

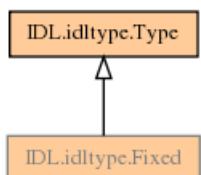
```
accept(self, visitor)
```

**seqType**

```
seqType(self)
```

**bound**

```
bound(self)
```

**class Fixed**

Class for fixed point types (Type) Functions: digits() -- digits. scale() -- scale.

**\_digits**

```
_digits
```

**\_scale**

```
_scale
```

**\_init\_**

```
_init__(self, digits, scale)
```

**accept**

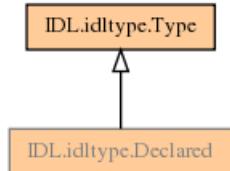
```
accept(self, visitor)
```

**digits**

```
digits(self)
```

**scale**

```
scale(self)
```

**class Declared**

Class for declared types (Type) Functions: decl() -- Decl object which corresponds to this type. scopedName() -- Fully scoped name of the type as a list of strings. name() -- Simple name of the type.

**\_decl**

```
_decl
```

**\_scopedName**

```
_scopedName
```

**\_init\_**

```
_init__(self, decl, scopedName, kind, local)
```

**accept**

```
accept(self, visitor)
```

**decl**

```
decl(self)
```

**scopedName**

```
scopedName(self)
```

**name**

```
name(self)
```

**containsValueType**

```
containsValueType(t, track = None)
```

Returns true if the type contains valuetypes

**baseType**

```
baseType(kind)
```

**stringType**

```
stringType(bound)
```

**wstringType**

```
wstringType(bound)
```

**sequenceType**

```
sequenceType(type_spec, bound, local)
```

**fixedType**

```
fixedType(digits, scale)
```

**declaredType**

```
declaredType(decl, scopedName, kind, local)
```

**clear**

```
clear()
```

Clear back-end structures ready for another run

**tk\_null**

```
tk_null
```

**tk\_void**

```
tk_void
```

## **tk\_short**

```
tk_short
```

## **tk\_long**

```
tk_long
```

## **tk\_ushort**

```
tk_ushort
```

## **tk\_ulong**

```
tk_ulong
```

## **tk\_float**

```
tk_float
```

## **tk\_double**

```
tk_double
```

## **tk\_boolean**

```
tk_boolean
```

## **tk\_char**

```
tk_char
```

## **tk\_octet**

```
tk_octet
```

## **tk\_any**

```
tk_any
```

## **tk\_TypeCode**

```
tk_TypeCode
```

## **tk\_Principal**

```
tk_Principal
```

## **tk\_objref**

```
tk_objref
```

## **tk\_struct**

`tk_struct`

## **tk\_union**

`tk_union`

## **tk\_enum**

`tk_enum`

## **tk\_string**

`tk_string`

## **tk\_sequence**

`tk_sequence`

## **tk\_array**

`tk_array`

## **tk\_alias**

`tk_alias`

## **tk\_except**

`tk_except`

## **tk\_longlong**

`tk_longlong`

## **tk\_ulonglong**

`tk_ulonglong`

## **tk\_longdouble**

`tk_longdouble`

## **tk\_wchar**

`tk_wchar`

## **tk\_wstring**

`tk_wstring`

## **tk\_fixed**

```
tk_fixed
```

## **tk\_value**

```
tk_value
```

## **tk\_value\_box**

```
tk_value_box
```

## **tk\_native**

```
tk_native
```

## **tk\_abstract\_interface**

```
tk_abstract_interface
```

## **tk\_local\_interface**

```
tk_local_interface
```

## **ot\_structforward**

```
ot_structforward
```

## **ot\_unionforward**

```
ot_unionforward
```

## **baseTypeMap**

```
baseTypeMap
```

## **stringTypeMap**

```
stringTypeMap
```

## **wstringTypeMap**

```
wstringTypeMap
```

## **sequenceTypeMap**

```
sequenceTypeMap
```

## **fixedTypeMap**

```
fixedTypeMap
```

## declaredTypeMap

```
declaredTypeMap
```

## Module IDL.idlutil

### \_valid\_chars

```
_valid_chars
```

### \_valid\_unicodes

```
_valid_unicodes
```

### slashName

```
slashName(scopedName, our_scope = [ ])
```

slashName(list, [list]) -> string Return a scoped name given as a list of strings as a single string with the components separated by '/' characters. If a second list is given, remove a common prefix using pruneScope().

### dotName

```
dotName(scopedName, our_scope = [ ])
```

dotName(list, [list]) -> string Return a scoped name given as a list of strings as a single string with the components separated by '.' characters. If a second list is given, remove a common prefix using pruneScope().

### ccolonName

```
ccolonName(scopedName, our_scope = [ ])
```

ccolonName(list, [list]) -> string Return a scoped name given as a list of strings as a single string with the components separated by '::' strings. If a second list is given, remove a common prefix using pruneScope().

### pruneScope

```
pruneScope(target_scope, our_scope)
```

pruneScope(list A, list B) -> list Given two lists of strings (scoped names), return a copy of list A with any prefix it shares with B removed. e.g. pruneScope(['A', 'B', 'C', 'D'], ['A', 'B', 'D']) -> ['C', 'D']

### escapifyString

```
escapifyString(s)
```

escapifyString(string) -> string Return the given string with any non-printing characters escaped.

### escapifyWString

```
escapifyWString(l, escchar = "u")
```

escapifyWString(int list) -> string Take a list of integers representing Unicode characters and return an ASCII string with all characters outside that range replaced with \u escapes.

## reprFloat

```
reprFloat(f)
```

reprFloat(float) -> string Return the string representation of an IDL float type (float, double, long double), with enough precision to completely reconstruct the bit pattern.

## relativeScope

```
relativeScope(fromScope, destScope)
```

relativeScope(fromScope, destScope) -> list Given two globally-scoped names, return a minimal scoped name list which identifies the destination scope, without clashing with another identifier. For example, given IDL: module M { typedef short A; typedef long B; module N { typedef string B; interface I { void op(in ::M::A x, in ::M::B y); }; }; relativeScope(["M", "N", "I"], ["M", "A"]) -> ["A"] relativeScope(["M", "N", "I"], ["M", "B"]) -> ["M", "B"] If the only valid result is a globally-scoped name, the result list is prefixed with None: module O { typedef short C; }; module P { module O { interface J { void op(in ::O::C z); }; }; relativeScope(["P", "O", "J"], ["O", "C"]) -> [None, "O", "C"] If either scoped name does not exist, returns None.

# Module IDL.idlvisitor

## class AstVisitor

Visitor for AST nodes Functions: visitAST(node) visitModule(node) visitInterface(node) visitForward(node) visitConst(node) visitDeclarator(node) visitTypedef(node) visitMember(node) visitStruct(node) visitStructForward(node) visitException(node) visitCaseLabel(node) visitUnionCase(node) visitUnion(node) visitUnionForward(node) visitEnumerator(node) visitEnum(node) visitAttribute(node) visitParameter(node) visitOperation(node) visitNative(node) visitStateMember(node) visitFactory(node) visitValueForward(node) visitValueBox(node) visitValueAbs(node) visitValue(node)

### visitAST

```
visitAST(self, node)
```

### visitModule

```
visitModule(self, node)
```

### visitInterface

```
visitInterface(self, node)
```

### visitForward

```
visitForward(self, node)
```

### visitConst

```
visitConst(self, node)
```

## **visitDeclarator**

```
visitDeclarator(self, node)
```

## **visitTypedef**

```
visitTypedef(self, node)
```

## **visitMember**

```
visitMember(self, node)
```

## **visitStruct**

```
visitStruct(self, node)
```

## **visitStructForward**

```
visitStructForward(self, node)
```

## **visitException**

```
visitException(self, node)
```

## **visitCaseLabel**

```
visitCaseLabel(self, node)
```

## **visitUnionCase**

```
visitUnionCase(self, node)
```

## **visitUnion**

```
visitUnion(self, node)
```

## **visitUnionForward**

```
visitUnionForward(self, node)
```

## **visitEnumerator**

```
visitEnumerator(self, node)
```

## **visitEnum**

```
visitEnum(self, node)
```

## **visitAttribute**

```
visitAttribute(self, node)
```

**visitParameter**

```
visitParameter(self, node)
```

**visitOperation**

```
visitOperation(self, node)
```

**visitNative**

```
visitNative(self, node)
```

**visitStateMember**

```
visitStateMember(self, node)
```

**visitFactory**

```
visitFactory(self, node)
```

**visitValueForward**

```
visitValueForward(self, node)
```

**visitValueBox**

```
visitValueBox(self, node)
```

**visitValueAbs**

```
visitValueAbs(self, node)
```

**visitValue**

```
visitValue(self, node)
```

**class TypeVisitor**

Visitor for Type objects Functions: visitBaseType(type) visitStringType(type) visitWStringType(type)  
visitSequenceType(type) visitFixedType(type) visitDeclaredType(type)

**visitBaseType**

```
visitBaseType(self, type)
```

**visitStringType**

```
visitStringType(self, type)
```

**visitWStringType**

```
visitWStringType(self, type)
```

**visitSequenceType**

```
visitSequenceType(self, type)
```

**visitFixedType**

```
visitFixedType(self, type)
```

**visitDeclaredType**

```
visitDeclaredType(self, type)
```

## Module IDL.omni

### class TypeTranslator

```
IDL.omni.TypeTranslator
```

maps idltype objects to ASG.TypeId objects in a ASG.Dictionary

**types**

```
types
```

**\_\_result**

```
__result
```

**\_\_basetypes**

```
__basetypes
```

**\_\_init\_\_**

```
__init__(self, types)
```

**internalize**

```
internalize(self, idltype)
```

**has\_key**

```
has_key(self, name)
```

**add**

```
add(self, name, type)
```

**get**

```
get(self, name)
```

**visitBaseType**

```
visitBaseType(self, idltype)
```

**visitStringType**

```
visitStringType(self, idltype)
```

**visitWStringType**

```
visitWStringType(self, idltype)
```

**visitSequenceType**

```
visitSequenceType(self, idltype)
```

**visitDeclaredType**

```
visitDeclaredType(self, idltype)
```

**class ASGTranslator**

```
IDL.omni.ASGTranslator
```

**declarations**

```
declarations
```

**primary\_file\_only**

```
primary_file_only
```

**types**

```
types
```

**\_\_scope**

```
__scope
```

**\_\_operation**

```
__operation
```

**\_\_enum**

```
__enum
```

**\_\_init\_\_**

```
__init__(self, declarations, types, primary_file_only)
```

**scope**

```
scope(self)
```

**add\_declarator**

```
add_declarator(self, declaration)
```

**addType**

```
addType(self, name, type)
```

**getType**

```
getType(self, name)
```

**visitAST**

```
visitAST(self, node)
```

**visitModule**

```
visitModule(self, node)
```

**visitInterface**

```
visitInterface(self, node)
```

**visitForward**

```
visitForward(self, node)
```

**visitConst**

```
visitConst(self, node)
```

**visitTypedef**

```
visitTypedef(self, node)
```

**visitMember**

```
visitMember(self, node)
```

**visitStruct**

```
visitStruct(self, node)
```

**visitException**

```
visitException(self, node)
```

**visitUnionCase**

```
visitUnionCase(self, node)
```

**visitUnion**

```
visitUnion(self, node)
```

**visitEnumerator**

```
visitEnumerator(self, node)
```

**visitEnum**

```
visitEnum(self, node)
```

**visitAttribute**

```
visitAttribute(self, node)
```

**visitParameter**

```
visitParameter(self, node)
```

**visitOperation**

```
visitOperation(self, node)
```

**strip\_filename**

```
strip_filename(filename)
```

This is aliased as strip if -b used and basename set

**parse**

```
parse(ir, cppfile, src, primary_file_only, base_path, verbose, debug)
```

**sourcefile**

```
sourcefile
```

## Package Python

### Modules

- Python.ASGTranslator
- Python.Python
- Python.SXRGenerator

## Module Python.ASGTranslator

### class TokenParser

**text**

```
text
```

**lines**

```
lines
```

**generator**

```
generator
```

**closers**

```
closers
```

**openers**

```
openers
```

**del\_ws\_prefix**

```
del_ws_prefix
```

**no\_ws\_suffix**

```
no_ws_suffix
```

**\_\_init\_\_**

```
__init__(self, text)
```

**\_\_iter\_\_**

```
__iter__(self)
```

**next**

```
next(self)
```

**goto\_line**

```
goto_line(self, lineno)
```

**rhs**

```
rhs(self, lineno)
```

Return a whitespace-normalized expression string from the right-hand side of an assignment at line `lineno`.

**note\_token**

```
note_token(self)
```

**function\_parameters**

```
function_parameters(self, lineno)
```

Return a dictionary mapping parameters to defaults (whitespace-normalized strings).

**class ASGTranslator**

```
Python.ASGTranslator.ASGTranslator
```

Translate the Python AST into a Synopsis ASG.

**scope**

```
scope
```

**file**

```
file
```

**types**

```
types
```

**attributes**

```
attributes
```

**any\_type**

```
any_type
```

**docformat**

```
docformat
```

**documentable**

```
documentable
```

**name**

```
name
```

**imports**

```
imports
```

Tuple with (module, names) pairs.

**\_\_init\_\_**

```
__init__(self, package, types, docformat)
```

Create an ASGTranslator. package: enclosing package the generated modules are to be part of.

**process\_file**

```
process_file(self, file)
```

**scope\_name**

```
scope_name(self)
```

**default**

```
default(self, node, args)
```

**default\_visit**

```
default_visit(self, node, args)
```

**visitDiscard**

```
visitDiscard(self, node)
```

**visitConst**

```
visitConst(self, node)
```

**visitStmt**

```
visitStmt(self, node)
```

**visitAssign**

```
visitAssign(self, node)
```

**visitModule**

```
visitModule(self, node)
```

**visitImport**

```
visitImport(self, node)
```

**visitFrom**

```
visitFrom(self, node)
```

**visitAssName**

```
visitAssName(self, node)
```

**visitAssTuple**

```
visitAssTuple(self, node)
```

**visitAssAttr**

```
visitAssAttr(self, node)
```

**visitGetattr**

```
visitGetattr(self, node, suffix)
```

**visitName**

```
visitName(self, node, suffix = None)
```

**visitFunction**

```
visitFunction(self, node)
```

**parse\_parameter\_list**

```
parse_parameter_list(self, node)
```

**visitClass**

```
visitClass(self, node)
```

**visitGetattr**

```
visitGetattr(self, node, suffix = None)
```

## Package Python.Python

### \_\_all\_\_

```
__all__
```

### class Parser

```
Python.Python.Parser
```

Python Parser. See <http://www.python.org/dev/peps/pep-0258> for additional info.

### primary\_file\_only

```
primary_file_only
```

### base\_path

```
base_path
```

**sxr\_prefix**

```
sxr_prefix
```

**default\_docformat**

```
default_docformat
```

**process**

```
process(self, ir, kwds)
```

**process\_file**

```
process_file(self, filename, base_path)
```

Parse an individual python file.

**expand\_package**

```
expand_package(root, verbose = False)
```

Find all modules in a given package.

**find\_imported**

```
find_imported(target, base_path, origin, verbose = False)
```

Lookup imported files, based on current file's location. target: (module, name) pair. base\_path: root directory to which to confine the lookup. origin: file name of the module issuing the import.

## Module Python.SXRGenerator

**class LexerDebugger****lexer**

```
lexer
```

**\_\_init\_\_**

```
__init__(self, lexer)
```

**next**

```
next(self)
```

**class SXRGenerator****debug**

```
debug
```

**handlers**

```
handlers
```

**col**

```
col
```

**lineno**

```
lineno
```

**parameters**

```
parameters
```

**scopes**

```
scopes
```

**\_\_init\_\_**

```
__init__(self, debug = False)
```

**process\_file**

```
process_file(self, scope, sourcefile, sxr)
```

**handle**

```
handle(self, ptree)
```

**default\_handler**

```
default_handler(self, ptree)
```

**next\_token**

```
next_token(self)
```

Return the next visible token. Process tokens that are not part of the parse tree silently.

**handle\_token**

```
handle_token(self, item = None)
```

**handle\_name\_as\_xref**

```
handle_name_as_xref(self, xref, name, from_ = None, type = None)
```

**handle\_tokens**

```
handle_tokens(self, ptree)
```

**handle\_end\_marker**

```
handle_end_marker(self, nodes)
```

**handle\_newline**

```
handle_newline(self, nodes)
```

**handle\_indent**

```
handle_indent(self, indent)
```

**handle\_dedent**

```
handle_dedent(self, dedent)
```

**handle\_string**

```
handle_string(self, content)
```

**handle\_function**

```
handle_function(self, nodes)
```

**handle\_parameters**

```
handle_parameters(self, nodes)
```

**handle\_class**

```
handle_class(self, nodes)
```

**handle\_name**

```
handle_name(self, content)
```

**handle\_expr\_stmt**

```
handle_expr_stmt(self, nodes)
```

**handle\_dotted\_name**

```
handle_dotted_name(self, dname, rest)
```

**handle\_op**

```
handle_op(self, nodes)
```

**handle\_power**

```
handle_power(self, content)
```

**handle\_encoding\_decl**

```
handle_encoding_decl(self, nodes)
```

**handle\_import\_as\_names**

```
handle_import_as_names(self, nodes)
```

**handle\_dotted\_as\_names**

```
handle_dotted_as_names(self, nodes)
```

**handle\_import\_from**

```
handle_import_from(self, nodes)
```

**handle\_import\_name**

```
handle_import_name(self, nodes)
```

**handle\_import**

```
handle_import(self, nodes)
```

**handle\_decorator**

```
handle_decorator(self, nodes)
```

**print\_token**

```
print_token(self, t)
```

**print\_newline**

```
print_newline(self)
```

**num\_tokens**

```
num_tokens(ptree)
```

Count the number of leaf tokens in the given ptree.

**escape**

```
escape(text)
```

**HAVE\_ENCODING\_DECL**

```
HAVE_ENCODING_DECL
```

**HAVE\_IMPORT\_NAME**

```
HAVE_IMPORT_NAME
```

## HAVE\_DECORATOR

```
HAVE_DECORATOR
```

### header

```
header
```

### trailer

```
trailer
```

# The HTML Formatter

## Modules

- [DirectoryLayout](#)
- [Fragment](#)
- [Fragments](#)
- [Frame](#)
- [FrameSet](#)
- [HTML](#)
- [Markup](#)
- [Part](#)
- [Parts](#)
- [Tags](#)
- [View](#)
- [Views](#)
- [XRefPager](#)

## Module DirectoryLayout

### class DirectoryLayout

```
DirectoryLayout.DirectoryLayout
```

DirectoryLayout defines how the generated html files are organized. The default implementation uses a flat layout with all files being part of a single directory.

**\_strip**

```
_strip(self, filename)
```

**init**

```
init(self, processor)
```

**copy\_file**

```
copy_file(self, src, dest)
```

Copy src to dest, if dest doesn't exist yet or is outdated.

**scope**

```
scope(self, scope = None)
```

Return the filename of a scoped name (class or module). The default implementation is to join the names with '-' and append ".html". Additionally, special characters are quoted.

**file\_index**

```
file_index(self, filename)
```

Return the filename for the index of an input file. Default implementation is to join the path with '.', prepend '\_file.' and append '.html'

**file\_source**

```
file_source(self, filename)
```

Return the filename for the source of an input file. Default implementation is to join the path with '.', prepend '\_source.' and append '.html'

**file\_details**

```
file_details(self, filename)
```

Return the filename for the details of an input file. Default implementation is to join the path with '.', prepend '\_file\_detail.' and append '.html'

**index**

```
index(self)
```

Return the name of the main index file. Default is index.html

**special**

```
special(self, name)
```

Return the name of a special file (tree, etc). Default is \_name.html

**scoped\_special**

```
scoped_special(self, name, scope, ext = '.html')
```

Return the name of a special type of scope file. Default is to join the scope with '' and prepend '!+name

**xref**

```
xref(self, page)
```

Return the name of the xref file for the given page

**module\_tree**

```
module_tree(self)
```

Return the name of the module tree index. Default is \_modules.html

**module\_index**

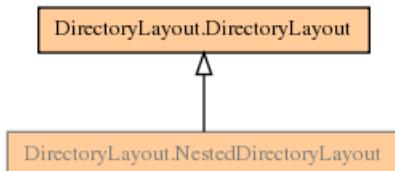
```
module_index(self, scope)
```

Return the name of the index of the given module. Default is to join the name with '.', prepend '\_module' and append '.html'

**link**

```
link(self, decl)
```

Create a link to the named declaration. This method may have to deal with the directory layout.

**class NestedDirectoryLayout**

Organizes files in a directory tree.

**scope**

```
scope(self, scope = None)
```

**file\_index**

```
file_index(self, filename)
```

**file\_source**

```
file_source(self, filename)
```

**file\_details**

```
file_details(self, filename)
```

**special**

```
special(self, name)
```

**scoped\_special**

```
scoped_special(self, name, scope, ext = '.html')
```

**xref**

```
xref(self, page)
```

**module\_tree**

```
module_tree(self)
```

**module\_index**

```
module_index(self, scope)
```

## Module Fragment

### class Fragment

Fragment.Fragment

Generates HTML fragment for a declaration. Multiple strategies are combined to generate the output for a single declaration, allowing the user to customise the output by choosing a set of strategies. This follows the Strategy design pattern. The key concept of this class is the format\* methods. Any class derived from Strategy that overrides one of the format methods will have that method called by the Summary and Detail parts when they visit that ASG type. Summary and Detail maintain a list of Strategies, and a list for each ASG type. For example, when Strategy.Summary visits a Function object, it calls the formatFunction method on all Strategys registered with Summary that implemented that method. Each of these format methods returns a string, which may contain a TD tag to create a new column. An important point to note is that only Strategies which override a particular format method are called - if that format method is not overridden then it is not called for that declaration type.

**register**

```
register(self, part)
```

Store part as self.part. The part is either a Summary or Detail, and is used for things like reference() and label() calls. Local references to the part's reference and label methods are stored in self for more efficient use of them.

**format\_modifiers**

```
format_modifiers(self, modifiers)
```

Returns a HTML string from the given list of string modifiers. The modifiers are enclosed in 'keyword' spans.

**format\_declaration**

```
format_declaration(self, decl)
```

**format\_macro**

```
format_macro(self, decl)
```

**format\_forward**

```
format_forward(self, decl)
```

**format\_group**

```
format_group(self, decl)
```

**format\_scope**

```
format_scope(self, decl)
```

**format\_module**

```
format_module(self, decl)
```

**format\_meta\_module**

```
format_meta_module(self, decl)
```

**format\_class**

```
format_class(self, decl)
```

**format\_class\_template**

```
format_class_template(self, decl)
```

**format\_typedef**

```
format_typedef(self, decl)
```

**format\_enum**

```
format_enum(self, decl)
```

**format\_variable**

```
format_variable(self, decl)
```

**format\_const**

```
format_const(self, decl)
```

**format\_function**

```
format_function(self, decl)
```

**format\_function\_template**

```
format_function_template(self, decl)
```

**format\_operation**

```
format_operation(self, decl)
```

**format\_operation\_template**

```
format_operation_template(self, decl)
```

# Package Fragments

## Modules

- Fragments.ClassHierarchyGraph
- Fragments.ClassHierarchySimple
- Fragments.DeclarationCommenter
- Fragments.DeclarationFormatter
- Fragments.Default
- Fragments.DetailCommenter
- Fragments.HeadingFormatter
- Fragments.InheritanceFormatter
- Fragments.SourceLinker
- Fragments.SummaryCommenter
- Fragments.TemplateSpecializations
- Fragments.XRefLinker

## Module Fragments.ClassHierarchyGraph

### class ClassHierarchyGraph

```
Fragments.ClassHierarchyGraph.ClassHierarchyGraph
```

Prints a graphical hierarchy for classes, using the Dot formatter. @see Formatters.Dot

**format\_class\_template**

```
format_class_template
```

**format\_class**

```
format_class(self, class_)
```

## Module Fragments.ClassHierarchySimple

**class ClassHierarchySimple**

Fragments.ClassHierarchySimple.ClassHierarchySimple

Prints a simple text hierarchy for classes

**format\_class\_template**

```
format_class_template
```

**format\_inheritance**

```
format_inheritance(self, inheritance)
```

**format\_class**

```
format_class(self, class_)
```

## Module Fragments.DeclarationCommenter

**class DeclarationCommenter**

Fragments.DeclarationCommenter.DeclarationCommenter

Add annotation details to all declarations.

**format\_declaration**

```
format_declaration(self, decl)
```

## Module Fragments.DeclarationFormatter

**class DeclarationFormatter**

Fragments.DeclarationFormatter.DeclarationFormatter

Base class for SummaryFormatter and DetailFormatter. The two classes SummaryFormatter and DetailFormatter are actually very similar in operation, and so most of their methods are defined here. Both of them print out the definition of the declarations, including type, parameters, etc. Some things such as exception specifications are only printed out in the detailed version.

**register**

```
register(self, part)
```

**format\_parameters**

```
format_parameters(self, parameters)
```

Returns formatted string for the given parameter list.

**format\_declaration**

```
format_declaration(self, decl)
```

The default is to return no type and just the declarations name for the name.

**format\_macro**

```
format_macro(self, decl)
```

**format\_forward**

```
format_forward(self, decl)
```

**format\_group**

```
format_group(self, decl)
```

**format\_scope**

```
format_scope(self, decl)
```

Scopes have their own views, so return a reference to it.

**format\_module**

```
format_module(self, decl)
```

**format\_meta\_module**

```
format_meta_module(self, decl)
```

**format\_class**

```
format_class(self, decl)
```

**format\_class\_template**

```
format_class_template(self, decl)
```

**format\_typedef**

```
format_typedef(self, decl)
```

(typedef type, typedef name)

**format\_enumerator**

```
format_enumerator(self, decl)
```

This is only called by formatEnum

**format\_enum**

```
format_enum(self, decl)
```

(enum name, list of enumerator names)

**format\_variable**

```
format_variable(self, decl)
```

**format\_const**

```
format_const(self, decl)
```

(const type, const name = const value)

**format\_function**

```
format_function(self, decl)
```

(return type, func + params + exceptions)

**format\_function\_template**

```
format_function_template(self, decl)
```

(return type, func + params + exceptions)

**format\_operation**

```
format_operation(self, decl)
```

**format\_operation\_template**

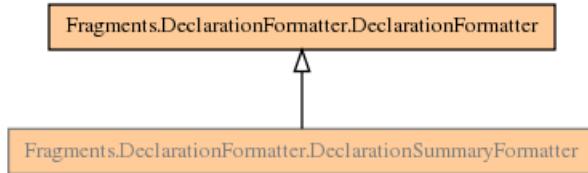
```
format_operation_template(self, decl)
```

**format\_parameter**

```
format_parameter(self, parameter)
```

Returns one string for the given parameter

## class DeclarationSummaryFormatter



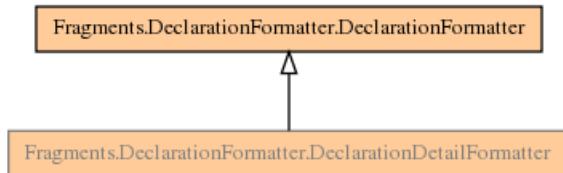
Derives from BaseStrategy to provide summary-specific methods. Currently the only one is format\_exceptions

### format\_exceptions

```
format_exceptions(self, oper)
```

Returns a reference to the detail if there are any exceptions.

## class DeclarationDetailFormatter



Provide detail-specific Declaration formatting.

### format\_exceptions

```
format_exceptions(self, oper)
```

Prints out the full exception spec

### format\_enum

```
format_enum(self, enum)
```

### format\_enumerator

```
format_enumerator(self, enumerator)
```

## Module Fragments.Default

### class Default



A base ASG strategy that calls format\_declaration for all types

### format\_macro

```
format_macro(self, decl)
```

**format\_forward**

```
format_forward(self, decl)
```

**format\_group**

```
format_group(self, decl)
```

**format\_scope**

```
format_scope(self, decl)
```

**format\_module**

```
format_module(self, decl)
```

**format\_meta\_module**

```
format_meta_module(self, decl)
```

**format\_class**

```
format_class(self, decl)
```

**format\_class\_template**

```
format_class_template(self, decl)
```

**format\_typedef**

```
format_typedef(self, decl)
```

**format\_enum**

```
format_enum(self, decl)
```

**format\_variable**

```
format_variable(self, decl)
```

**format\_const**

```
format_const(self, decl)
```

**format\_function**

```
format_function(self, decl)
```

**format\_function\_template**

```
format_function_template(self, decl)
```

**format\_operation**

```
format_operation(self, decl)
```

**format\_operation\_template**

```
format_operation_template(self, decl)
```

## Module Fragments.DetailCommenter

**class DetailCommenter**

```
Fragments.DetailCommenter.DetailCommenter
```

Add annotation details to all declarations.

**format\_declaration**

```
format_declaration(self, decl)
```

## Module Fragments.HeadingFormatter

**class HeadingFormatter**

```
Fragments.HeadingFormatter.HeadingFormatter
```

Formats the top of a view - it is passed only the Declaration that the view is for (a Module or Class).

**register**

```
register(self, part)
```

**format\_name**

```
format_name(self, qname)
```

Formats a qualified name such that each name component becomes a link to the respective scope.

**format\_name\_in\_module**

```
format_name_in_module(self, qname)
```

Formats a reference to each parent scope, starting at the first non-module scope.

**format\_module\_of\_name**

```
format_module_of_name(self, qname)
```

Formats a reference to each parent scope and this one.

**format\_module**

```
format_module(self, module)
```

Formats the module by linking to each parent scope in the name.

**format\_meta\_module**

```
format_meta_module(self, module)
```

Calls format\_module.

**format\_class**

```
format_class(self, class_)
```

Formats the class by linking to each parent scope in the name.

**format\_class\_template**

```
format_class_template(self, class_)
```

Formats the class template by linking to each parent scope in the name.

**format\_forward**

```
format_forward(self, forward)
```

Formats the forward declaration if it is a template declaration.

**format\_parameter**

```
format_parameter(self, parameter)
```

Returns one string for the given parameter

## Module Fragments.InheritanceFormatter

### class InheritanceFormatter

```
Fragments.InheritanceFormatter.InheritanceFormatter
```

Prints just the name of each declaration, with a link to its doc

**format\_declaration**

```
format_declaration(self, decl, label = None)
```

**format\_function**

```
format_function(self, decl)
```

**format\_operation**

```
format_operation(self, decl)
```

**Module Fragments.SourceLinker****\_icons**

```
_icons
```

**class SourceLinker**

```
Fragments.SourceLinker.SourceLinker
```

Adds a link to the decl on the file view to all declarations

**register**

```
register(self, part)
```

**format\_declaration**

```
format_declaration(self, decl)
```

**Module Fragments.SummaryCommenter****class SummaryCommenter**

```
Fragments.SummaryCommenter.SummaryCommenter
```

Adds summary annotations to all declarations.

**format\_declaration**

```
format_declaration(self, decl)
```

**Module Fragments.TemplateSpecializations****class TemplateSpecializations**

```
Fragments.TemplateSpecializations.TemplateSpecializations
```

Cross-link primary templates with their specializations.

**format\_forward**

```
format_forward(self, forward)
```

**format\_class**

```
format_class(self, class_)
```

**format\_class\_template**

```
format_class_template(self, template_)
```

## Module Fragments.XRefLinker

**class XRefLinker**

```
Fragments.XRefLinker.XRefLinker
```

Adds an xref link to all declarations

**register**

```
register(self, part)
```

**format\_declaration**

```
format_declaration(self, decl)
```

## Module Frame

**class Frame**

A Frame is a mediator for views that get displayed in it (as well as other frames. It supports the creation of links across views.

**processor**

```
processor
```

**views**

```
views
```

**noframes**

```
noframes
```

**\_\_init\_\_**

```
__init__(self, processor, views, noframes = False)
```

**process**

```
process(self)
```

**navigation\_bar**

```
navigation_bar(self, view)
```

Generates a navigation bar for the given view.

## Module FrameSet

### class FrameSet

A class that creates an index with frames

#### process

```
process(self, output, filename, title, index, detail, content)
```

Creates a frames index file.

## Package HTML

### class DocCache

#### \_process

```
_process(self, decl, view)
```

Return the documentation for the given declaration.

#### \_processor

```
_processor
```

#### \_markup\_formatters

```
_markup_formatters
```

#### \_doc\_cache

```
_doc_cache
```

#### \_\_init\_\_

```
__init__(self, processor, markup_formatters)
```

#### doc

```
doc(self, decl, view)
```

#### summary

```
summary(self, decl, view)
```

**details**

```
details(self, decl, view)
```

**class Formatter**

HTML.Formatter

**title**

```
title
```

**stylesheet**

```
stylesheet
```

**directory\_layout**

```
directory_layout
```

**toc\_in**

```
toc_in
```

**toc\_out**

```
toc_out
```

**sxr\_prefix**

```
sxr_prefix
```

**index**

```
index
```

**detail**

```
detail
```

**content**

```
content
```

**markup\_formatters**

```
markup_formatters
```

**graph\_color**

```
graph_color
```

**process**

```
process(self, ir, kwds)
```

**has\_view**

```
has_view(self, name)
```

test whether the given view is part of the views list.

**register\_filename**

```
register_filename(self, filename, view, scope)
```

Registers a file for later production. The first view to register the filename gets to keep it.

**filename\_info**

```
filename_info(self, filename)
```

Returns information about a registered file, as a (view,scope) pair. Will return None if the filename isn't registered.

# Package Markup

## Modules

- [Markup.Javadoc](#)
- [Markup.Markup](#)
- [Markup.RST](#)

## Module [Markup.Javadoc](#)

### class [Javadoc](#)

```
Markup.Javadoc.Javadoc
```

A formatter that formats comments similar to Javadoc. See `Javadoc Spec`\_ for info. .. \_Javadoc Spec:  
<http://java.sun.com/j2se/1.5.0/docs/tooldocs/solaris/javadoc.html>

### class [Block](#)

#### tag

```
tag
```

#### arg

```
arg
```

**body**

```
body
```

**\_\_init\_\_**

```
__init__(self, tag, arg, body)
```

**summary**

```
summary
```

**block\_tag**

```
block_tag
```

**inline\_tag**

```
inline_tag
```

**inline\_tag\_split**

```
inline_tag_split
```

**xref**

```
xref
```

**tag\_name**

```
tag_name
```

**arg\_tags**

```
arg_tags
```

**\_\_init\_\_**

```
__init__(self)
```

Create regex objects for regexps

**split**

```
split(self, doc)
```

Split a javadoc comment into description and blocks.

**extract\_summary**

```
extract_summary(self, description)
```

Generate a summary from the given description.

**format**

```
format(self, decl, view)
```

Format using javadoc markup.

**format\_description**

```
format_description(self, text, view, decl)
```

**format\_inlines**

```
format_inlines(self, view, decl, text)
```

Formats inline tags in the text.

**format\_params**

```
format_params(self, blocks, view, decl)
```

Formats a list of (param, description) tags

**format\_throws**

```
format_throws(self, blocks, view, decl)
```

**format\_tag**

```
format_tag(self, tag, blocks, view, decl)
```

**format\_inline\_tag**

```
format_inline_tag(self, tag, content, view, decl)
```

# Package Markup.Markup

## class Struct

### summary

```
summary
```

### details

```
details
```

### \_\_init\_\_

```
__init__(self, summary = '', details = '')
```

### has\_details

```
has_details(self)
```

## class Formatter

```
Markup.Markup.Formatter
```

Interface class that takes a 'doc' annotation and formats its text. Markup-specific subclasses should provide appropriate format methods.

### \_lookup\_symbol\_in

```
_lookup_symbol_in(self, symbol, scope)
```

### \_find\_method\_entry

```
_find_method_entry(self, name, scope)
```

### init

```
init(self, processor)
```

### format

```
format(self, decl, view)
```

Format the declaration's documentation. @param view the View to use for references and determining the correct relative filename. @param decl the declaration @returns Struct containing summary / details pair.

### lookup\_symbol

```
lookup_symbol(self, symbol, scope)
```

Given a symbol and a scope, returns an URL. Various methods are tried to resolve the symbol. First the parameters are taken off, then we try to split the symbol using '.' or '::'. The params are added back, and then we try to match this scoped name against the current scope. If that fails, then we recursively try enclosing scopes.

## Module Markup.RST

## class SummaryExtractor

```
Markup.RST.SummaryExtractor
```

A SummaryExtractor creates a document containing the first sentence of a source document.

### summary

```
summary
```

### \_init\_

```
_init__(self, document)
```

## visit\_paragraph

```
visit_paragraph(self, node)
```

Copy the paragraph but only keep the first sentence.

## unknown\_visit

```
unknown_visit(self, node)
```

Ignore all unknown nodes

## class RST

```
Markup.RST.RST
```

Format summary and detail documentation according to restructured text markup.

### roles

```
roles
```

### format

```
format(self, decl, view)
```

### span

```
span(name, rawtext, text, lineno, inliner, options = {}, content = [])
```

Maps a role to a <span class="role">...</span>.

## Module Part

### class Part

```
Part.Part
```

Base class for formatting a Part of a Scope View. This class contains functionality for modularly formatting an ASG node and its children for display. It is typically used to construct Heading, Summary and Detail formatters. Strategy objects are added according to configuration, and this base class then checks which format methods each strategy implements. For each ASG declaration visited, the Part asks all Strategies which implement the appropriate format method to generate output for that declaration. The final writing of the formatted html is delegated to the write\_section\_start, write\_section\_end, and write\_section\_item methods, which must be implemented in a subclass.

### fragments

```
fragments
```

**register**

```
register(self, view)
```

**view**

```
view(self)
```

**filename**

```
filename(self)
```

**os**

```
os(self)
```

**scope**

```
scope(self)
```

**write**

```
write(self, text)
```

**type\_ref**

```
type_ref(self)
```

**type\_label**

```
type_label(self)
```

**declarator**

```
declarator(self)
```

**parameter**

```
parameter(self)
```

**reference**

```
reference(self, name, label = None, keys)
```

Returns a reference to the given name. The name is a scoped name, and the optional label is an alternative name to use as the link text. The name is looked up in the TOC so the link may not be local. The optional keys are appended as attributes to the A tag.

**label**

```
label(self, name, label = None)
```

Create a label for the given name. The label is an anchor so it can be referenced by other links. The name of the label is derived by looking up the name in the TOC and using the link in the TOC entry. The optional

label is an alternative name to use as the displayed name. If the name is not found in the TOC then the name is not anchored and just label is returned (or name if no label is given).

## **format\_declaration**

```
format_declaration(self, decl, method)
```

Format decl using named method of each fragment. Each fragment returns two strings - type and name. All the types are joined and all the names are joined separately. The consolidated type and name strings are then passed to write\_section\_item.

## **process**

```
process(self, decl)
```

Formats the given decl, creating the output for this Part of the view. This method is implemented in various subclasses in different ways, for example Summary and Detail iterate through the children of 'decl' section by section, whereas Heading only formats decl itself.

## **visit\_declaration**

```
visit_declaration(self, decl)
```

## **visit\_macro**

```
visit_macro(self, decl)
```

## **visit\_forward**

```
visit_forward(self, decl)
```

## **visit\_group**

```
visit_group(self, decl)
```

## **visit\_scope**

```
visit_scope(self, decl)
```

## **visit\_module**

```
visit_module(self, decl)
```

## **visit\_meta\_module**

```
visit_meta_module(self, decl)
```

## **visit\_class**

```
visit_class(self, decl)
```

## **visit\_class\_template**

```
visit_class_template(self, decl)
```

**visit\_typedef**

```
visit_typedef(self, decl)
```

**visit\_enum**

```
visit_enum(self, decl)
```

**visit\_variable**

```
visit_variable(self, decl)
```

**visit\_const**

```
visit_const(self, decl)
```

**visit\_function**

```
visit_function(self, decl)
```

**visit\_function\_template**

```
visit_function_template(self, decl)
```

**visit\_operation**

```
visit_operation(self, decl)
```

**visit\_operation\_template**

```
visit_operation_template(self, decl)
```

**format\_type**

```
format_type(self, typeObj, id_holder = None)
```

Returns a reference string for the given type object

**visit\_builtin\_type\_id**

```
visit_builtin_type_id(self, type)
```

Sets the label to be a reference to the type's name

**visit\_unknown\_type\_id**

```
visit_unknown_type_id(self, type)
```

Sets the label to be a reference to the type's link

**visit\_declared\_type\_id**

```
visit_declared_type_id(self, type)
```

Sets the label to be a reference to the type's name

**visit\_dependent\_type\_id**

```
visit_dependent_type_id(self, type)
```

Sets the label to be the type's name (which has no proper scope)

**visit\_modifier\_type\_id**

```
visit_modifier_type_id(self, type)
```

Adds modifiers to the formatted label of the modifier's alias

**visit\_parametrized\_type\_id**

```
visit_parametrized_type_id(self, type)
```

Adds the parameters to the template name in angle brackets

**visit\_template\_id**

```
visit_template_id(self, type)
```

Labs the template with the parameters

**visit\_function\_type\_id**

```
visit_function_type_id(self, type)
```

Labels the function type with return type, name and parameters

**write\_start**

```
write_start(self)
```

Abstract method to start the output, eg table headings

**write\_section\_start**

```
write_section_start(self, heading)
```

Abstract method to start a section of declaration types

**write\_section\_end**

```
write_section_end(self, heading)
```

Abstract method to end a section of declaration types

**write\_section\_item**

```
write_section_item(self, text)
```

Abstract method to write the output of one formatted declaration

**write\_end**

```
write_end(self)
```

Abstract method to end the output, eg close the table

## Package Parts

### Modules

- Parts.Body
- Parts.Detail
- Parts.Heading
- Parts.Inheritance
- Parts.Summary

## Module Parts.Body

### class Body

```
Parts.Body.Body
```

#### fragments

```
fragments
```

#### write\_section\_start

```
write_section_start(self, heading)
```

Start a 'detail' section and write an appropriate heading.

#### write\_section\_end

```
write_section_end(self, heading)
```

Close the section.

#### write\_section\_item

```
write_section_item(self, text)
```

Add an item.

#### process

```
process(self, decl)
```

Print out the details for the children of the given decl

## Module Parts.Detail

### class Detail

```
Parts.Detail.Detail
```

#### fragments

```
fragments
```

#### write\_section\_start

```
write_section_start(self, heading)
```

Start a 'detail' section and write an appropriate heading.

#### write\_section\_end

```
write_section_end(self, heading)
```

Close the section.

#### write\_section\_item

```
write_section_item(self, text)
```

Add an item.

#### process

```
process(self, decl)
```

Print out the details for the children of the given decl

## Module Parts.Heading

### class Heading

```
Parts.Heading.Heading
```

Heading view part. Displays a header for the view -- its strategies are only passed the object that the view is for; ie a Class or Module

#### fragments

```
fragments
```

#### write\_section\_item

```
write_section_item(self, text)
```

Writes text and follows with a horizontal rule

**process**

```
process(self, decl)
```

Process this Part by formatting only the given decl

## Module Parts.Inheritance

### class Inheritance

```
Parts.Inheritance.Inheritance
```

#### process\_class

```
_process_class(self, class_, names)
```

Prints info for the given class, and calls \_process\_superclasses after

#### process\_superclasses

```
_process_superclasses(self, class_, names)
```

Iterates through the superclasses of clas and calls \_process\_clas for each

### fragments

```
fragments
```

### register

```
register(self, view)
```

### process

```
process(self, decl)
```

Walk the hierarchy to find inherited members to print.

### write\_section\_start

```
write_section_start(self, heading)
```

Creates a table with one row. The row has a td of class 'heading' containing the heading string

### write\_section\_item

```
write_section_item(self, text)
```

Adds a table row

### write\_section\_end

```
write_section_end(self, heading)
```

## **short\_name**

```
short_name(decl)
```

# **Module Parts.Summary**

## **class Summary**

```
Parts.Summary.Summary
```

Formatting summary visitor. This formatter displays a summary for each declaration, with links to the details if there is one. All of this is controlled by the ASGFormatters.

### **fragments**

```
fragments
```

### **register**

```
register(self, view)
```

### **set\_link\_detail**

```
set_link_detail(self, flag)
```

Sets link\_detail flag to given value. @see label()

### **label**

```
label(self, ref, label = None)
```

Override to check link\_detail flag. If it's set, returns a reference instead - which will be to the detailed info

### **write\_section\_start**

```
write_section_start(self, heading)
```

Start a 'summary' section and write an appropriate heading.

### **write\_section\_end**

```
write_section_end(self, heading)
```

Close the section.

### **write\_section\_item**

```
write_section_item(self, text)
```

Add an item.

**process**

```
process(self, scope)
```

Print out the summaries from the given scope

## Module Tags

**rel**

```
rel(origin, target)
```

Find link to target relative to origin URL.

**attributes**

```
attributes(keys)
```

Convert a name/value dict to a string of attributes. A common HTML attribute is 'class'. Since 'class' is a Python keyword, we accept 'class\_' instead, and translate that to 'class'.

**element**

```
element(_, body = None, keys)
```

Wrap the body in a tag of given type and attributes

**href**

```
href(ref, label, attrs)
```

**img**

```
img(attrs)
```

**name**

```
name(ref, label)
```

**span**

```
span(body, attrs)
```

**div**

```
div(body, attrs)
```

**para**

```
para(body, attrs)
```

**desc**

```
desc(text)
```

Create a description div for the given text

**escape**

```
escape(text)
```

**quote\_as\_id**

```
quote_as_id(text)
```

**replace\_spaces**

```
replace_spaces(text)
```

Replaces spaces in the given string with &#160; sequences. Does NOT replace spaces inside tags

**using\_frames**

```
using_frames
```

## Module View

### class Format

```
View.Format
```

Default and base class for formatting a view layout. The Format class basically defines the HTML used at the start and end of the view. The default creates an XHTML compliant header and footer with a proper title, and link to the stylesheet.

**init**

```
init(self, processor, prefix)
```

**view\_header**

```
view_header(self, os, title, body, headextra, view)
```

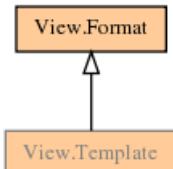
Called to output the view header to the given output stream. @param os a file-like object (use os.write()) @param title the title of this view @param body the body tag, which may contain extra parameters such as onLoad scripts, and may also be empty eg: for the frames index @param headextra extra html to put in the head section, such as scripts

**view\_footer**

```
view_footer(self, os, body)
```

Called to output the view footer to the given output stream. @param os a file-like object (use os.write())  
@param body the close body tag, which may be empty eg: for the frames index

## class Template



Format subclass that uses a template file to define the HTML header and footer for each view.

### template

```
template
```

### copy\_files

```
copy_files
```

### init

```
init(self, processor, prefix)
```

### load\_file

```
load_file(self)
```

Loads and parses the template file

### write

```
write(self, os, text)
```

Writes the text to the output stream, replaceing @PREFIX@ with the prefix for this file

### view\_header

```
view_header(self, os, title, body, headextra, view)
```

Formats the header using the template file

### view\_footer

```
view_footer(self, os, body)
```

Formats the footer using the template file

## class View



Base class for Views. The base class provides a common interface, and also handles common operations such as opening the file, and delegating the view formatting to a strategy class.

**main**

```
main
```

**\_id\_counter**

```
_id_counter
```

**template**

```
template
```

**\_\_init\_\_**

```
__init__(self, kwds)
```

**generate\_id**

```
generate_id(self)
```

Generate an id that is (at least) unique on a particular view, and thus, html document.

**register**

```
register(self, frame)
```

Registers this View class with its frame.

**filename**

```
filename(self)
```

Return the filename (currently) associated with the view.

**title**

```
title(self)
```

Return the title (currently) associated with the view.

**root**

```
root(self)
```

Return a pair of (url, label) to link to the entry point of this view.

**write\_navigation\_bar**

```
write_navigation_bar(self)
```

Generate a navigation bar for this view.

**os**

```
os(self)
```

Returns the output stream opened with start\_file

**write**

```
write(self, str)
```

Writes the given string to the currently opened file

**register\_filenames**

```
register_filenames(self)
```

Register filenames for each file this View will generate.

**toc**

```
toc(self)
```

Retrieves the TOC for this view. This method assumes that the view generates info for the the whole ASG, which could be the Scope, the Source (source code) or the XRef (cross reference info). The default implementation returns None.

**process**

```
process(self)
```

Process the ASG, creating view-specific html pages.

**open\_file**

```
open_file(self)
```

Returns a new output stream. This template method is for internal use only, but may be overriden in derived classes. The default joins output dir and self.filename()

**close\_file**

```
close_file(self)
```

Closes the internal output stream. This template method is for internal use only, but may be overriden in derived classes.

**start\_file**

```
start_file(self, body = '', headextra = '')
```

Start a new file with given filename, title and body. This method opens a file for writing, and writes the html header crap at the top. You must specify a title, which is prepended with the project name. The body argument is optional, and it is preferred to use stylesheets for that sort of stuff. You may want to put an onLoad handler in it though in which case that's the place to do it. The opened file is stored and can be accessed using the os() method.

## end\_file

```
end_file(self, body = '</body>')
```

Close the file using given close body tag. The default is just a close body tag, but if you specify " then nothing will be written (useful for a frames view)

## reference

```
reference(self, name, scope, label = None, keys)
```

Returns a reference to the given name. The name is a scoped name, and the optional label is an alternative name to use as the link text. The name is looked up in the TOC so the link may not be local. The optional keys are appended as attributes to the A tag.

# Package Views

## Modules

- [Views.Directory](#)
- [Views.FileDetails](#)
- [Views.FileIndex](#)
- [Views.FileListing](#)
- [Views.FileTree](#)
- [Views.InheritanceGraph](#)
- [Views.InheritanceTree](#)
- [Views.ModuleIndex](#)
- [Views.ModuleListing](#)
- [Views.ModuleTree](#)
- [Views.NameIndex](#)
- [Views.RawFile](#)
- [Views.Scope](#)
- [Views.Source](#)
- [Views.Tree](#)
- [Views.XRef](#)

## Module Views.Directory

### class Directory

```
Views.Directory.Directory
```

A view that lists the content of a directory.

#### src\_dir

```
src_dir
```

#### base\_path

```
base_path
```

#### exclude

```
exclude
```

#### filename

```
filename(self)
```

#### title

```
title(self)
```

#### root

```
root(self)
```

#### filename\_for\_dir

```
filename_for_dir(self, dir)
```

Returns the output filename for the given input directory.

#### register

```
register(self, frame)
```

#### register\_filenames

```
register_filenames(self)
```

#### process

```
process(self)
```

#### process\_dir

```
process_dir(self, path)
```

**end\_file**

```
end_file(self)
```

Overrides end\_file to provide synopsis logo

**compile\_glob**

```
compile_glob(globstr)
```

Returns a compiled regular expression for the given glob string. A glob string is something like "`.*?pp`" which gets translated into "`^.*\..pp$`".

## Module Views.FileDetails

### class FileDetails

```
Views.FileDetails.FileDetails
```

A view that creates an index of files, and an index for each file. First the index of files is created, intended for the top-left frame. Second a view is created for each file, listing the major declarations for that file, eg: classes, global functions, namespaces, etc.

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

since FileTree generates a whole file hierarchy, this method returns the current filename, which may change over the lifetime of this object

**title**

```
title(self)
```

since FileTree generates a whole file hierarchy, this method returns the current title, which may change over the lifetime of this object

**register\_filenames**

```
register_filenames(self)
```

Registers a view for each file indexed.

**process**

```
process(self)
```

Creates a view for each known source file.

**process\_file**

```
process_file(self, filename, file)
```

Creates a view for the given file. The view is just an index, containing a list of declarations.

## Module Views.FileIndex

### class FileIndex

```
Views.FileIndex.FileIndex
```

A view that creates an index of files, and an index for each file. First the index of files is created, intended for the top-left frame. Second a view is created for each file, listing the major declarations for that file, eg: classes, global functions, namespaces, etc.

#### register

```
register(self, frame)
```

#### filename

```
filename(self)
```

since FileTree generates a whole file hierarchy, this method returns the current filename, which may change over the lifetime of this object

#### title

```
title(self)
```

since FileTree generates a whole file hierarchy, this method returns the current title, which may change over the lifetime of this object

#### register\_filenames

```
register_filenames(self)
```

Registers a view for each file indexed.

#### process

```
process(self)
```

Creates a view for each known file.

#### process\_file

```
process_file(self, filename, file)
```

Creates a view for the given file. The view is just an index, containing a list of declarations.

## Module Views.FileListing

### class FileListing

```
Views.FileListing.FileListing
```

A view that creates an index of files, and an index for each file. First the index of files is created, intended for the top-left frame. Second a view is created for each file, listing the major declarations for that file, eg: classes, global functions, namespaces, etc.

#### **\_node\_sorter**

```
_node_sorter(self, a, b)
```

Compares file nodes a and b depending on whether they are leaves or not

#### **filename**

```
filename(self)
```

#### **title**

```
title(self)
```

#### **root**

```
root(self)
```

#### **register\_filenames**

```
register_filenames(self)
```

Registers a view for each file indexed.

#### **process**

```
process(self)
```

Creates the listing using the recursive process\_file\_tree\_node method

#### **process\_file\_tree\_node**

```
process_file_tree_node(self, node)
```

Creates a portion of the tree for the given file node. This method assumes that the file is already in progress, and just appends to it. This method is recursive, calling itself for each child of node (file or directory).

## Module Views.FileTree

### class FileTree

```
Views.FileTree.FileTree
```

Create a javascript-enabled file tree.

### **link\_to\_views**

```
link_to_views
```

### **filename**

```
filename(self)
```

### **title**

```
title(self)
```

### **root**

```
root(self)
```

### **process**

```
process(self)
```

### **process\_node**

```
process_node(self, node)
```

## **Module Views.InheritanceGraph**

### **class DeclarationFinder**

```
Views.InheritanceGraph.DeclarationFinder
```

#### **\_\_call\_\_**

```
__call__(self, name)
```

#### **types**

```
types
```

#### **verbose**

```
verbose
```

#### **\_\_init\_\_**

```
__init__(self, types, verbose)
```

#### **visit\_builtin\_type\_id**

```
visit_builtin_type_id(self, type)
```

**visit\_unknown\_type\_id**

```
visit_unknown_type_id(self, type)
```

**visit\_declared\_type\_id**

```
visit_declared_type_id(self, type)
```

**visit\_modifier\_type\_id**

```
visit_modifier_type_id(self, type)
```

**visit\_array\_type\_id**

```
visit_array_type_id(self, type)
```

**visit\_template\_id**

```
visit_template_id(self, type)
```

**visit\_parametrized\_type\_id**

```
visit_parametrized_type_id(self, type)
```

**visit\_function\_type\_id**

```
visit_function_type_id(self, type)
```

**class InheritanceGraph**

```
Views.InheritanceGraph.InheritanceGraph
```

**min\_size**

```
min_size
```

**min\_group\_size**

```
min_group_size
```

**direction**

```
direction
```

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**consolidate**

```
consolidate(self, graphs)
```

Consolidates small graphs into larger ones

**process**

```
process(self)
```

Creates a file with the inheritance graph

**find\_common\_name**

```
find_common_name(graph)
```

## Module Views.InheritanceTree

**class InheritanceTree**

```
Views.InheritanceTree.InheritanceTree
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**process**

```
process(self)
```

**process\_inheritance**

```
process_inheritance(self, name, rel_name)
```

## Module Views.ModuleIndex

### class ModuleIndex

```
Views.ModuleIndex.ModuleIndex
```

A module for indexing ASG.Modules. Each module gets its own view with a list of nested scope declarations with documentation. It is intended to go in the left frame...

#### register

```
register(self, frame)
```

#### filename

```
filename(self)
```

#### title

```
title(self)
```

#### process

```
process(self)
```

#### make\_view\_heading

```
make_view_heading(self, module)
```

Creates a HTML fragment which becomes the name at the top of the index view. This may be overridden, but the default is (now) to make a linked fully scoped name, where each scope has a link to the relevant index.

#### process\_module\_index

```
process_module_index(self, module)
```

Index one module

## Module Views.ModuleListing

### class ModuleListing

```
Views.ModuleListing.ModuleListing
```

Create an index of all modules.

#### \_link\_href

```
_link_href(self, module)
```

Returns the link to the given declaration

**short\_title**

```
short_title
```

**child\_types**

```
child_types
```

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**process**

```
process(self)
```

Create a view with an index of all modules.

**get\_children**

```
get_children(self, decl)
```

Returns the children of the given declaration

**index\_module**

```
index_module(self, module, rel_scope)
```

Write a link for this module and recursively visit child modules.

## Module Views.ModuleTree

### class ModuleTree

`Views.ModuleTree.ModuleTree`

Create a javascript-enabled module tree.

**\_link\_href**

```
_link_href(self, module)
```

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**process**

```
process(self)
```

**get\_children**

```
get_children(self, decl)
```

**index\_module**

```
index_module(self, module, qname)
```

Write a link for this module and recursively visit child modules.

## Module Views.NameIndex

### class NameIndex

```
Views.NameIndex.NameIndex
```

Creates an index of all names on one view in alphabetical order.

#### **\_process\_item**

```
_process_item(self, type)
```

Process the given name for output

#### **columns**

```
columns
```

#### **filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**process**

```
process(self)
```

**make\_dictionary**

```
make_dictionary(self)
```

Returns a dictionary of items. The keys of the dictionary are the headings - the first letter of the name. The values are each a sorted list of items with that first letter.

**end\_file**

```
end_file(self)
```

Overrides end\_file to provide synopsis logo

## Module Views.RawFile

### class RawFile

```
Views.RawFile.RawFile
```

A module for creating a view for each file with hyperlinked source

**\_get\_files**

```
_get_files(self)
```

Returns a list of (path, output\_filename) for each file.

**src\_dir**

```
src_dir
```

**base\_path**

```
base_path
```

**exclude**

```
exclude
```

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**process**

```
process(self)
```

Creates a view for every file.

**register\_filenames**

```
register_filenames(self)
```

**process\_file**

```
process_file(self, original, filename)
```

Creates a view for the given filename.

## Module Views.Scope

**class Scope**

Views.Scope.Scope

A module for creating a view for each Scope with summaries and details. This module is highly modular, using the classes from ASGFormatter to do the actual formatting. The classes to use may be controlled via the config script, resulting in a very configurable output. @see ASGFormatter The ASGFormatter module  
@see Config.Formatters.HTML.ScopeViews Config for ScopeViews

**parts**

```
parts
```

**register**

```
register(self, frame)
```

**toc**

```
toc(self)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**root**

```
root(self)
```

**scope**

```
scope(self)
```

return the current scope processed by this object

**process**

```
process(self)
```

Creates a view for every Scope.

**register\_filenames**

```
register_filenames(self)
```

Registers a view for every Scope.

**process\_scope**

```
process_scope(self, scope)
```

Creates a view for the given scope

**end\_file**

```
end_file(self)
```

Overrides end\_file to provide synopsis logo

## Module Views.Source

### class SXRTranslator

Read in an sxr file, resolve references, and write it out as part of a Source view.

**\_\_init\_\_**

```
__init__(self, filename, language, debug)
```

**link**

```
link(self, linker)
```

**translate**

```
translate(self, writer)
```

**class Source**

Views.Source.Source

A module for creating a view for each file with hyperlinked source

**external\_url**

```
external_url
```

**register**

```
register(self, frame)
```

**filename**

```
filename(self)
```

**title**

```
title(self)
```

**process**

```
process(self)
```

Creates a view for every file

**register\_filenames**

```
register_filenames(self)
```

Registers a view for every source file

**process\_node**

```
process_node(self, file)
```

Creates a view for the given file

**lookup\_symbol**

```
lookup_symbol(self, name)
```

**external\_ref**

```
external_ref(self, name)
```

**end\_file**

```
end_file(self)
```

Overrides end\_file to provide synopsis logo

## Module Views.Tree

**class Tree**

Views.Tree.Tree

View that makes Javascript trees. The trees have expanding and collapsing nodes. call js\_init() with the button images and default open/close policy during process

**register**

```
register(self, frame)
```

**get\_id**

```
get_id(self)
```

**write\_leaf**

```
write_leaf(self, text)
```

Write a leaf node to the output at the current tree level.

**write\_node\_start**

```
write_node_start(self, text)
```

Write a non-leaf node to the output at the current tree level, and start a new level.

**write\_node\_end**

```
write_node_end(self)
```

Finish a non-leaf node, and close the current tree level.

**end\_tree**

```
end_tree(self)
```

Writes the end of the tree.

## Module Views.XRef

### class XRef

```
Views.XRef.XRef
```

A module for creating views full of xref infos

#### link\_to\_scope

```
link_to_scope
```

#### register

```
register(self, frame)
```

#### toc

```
toc(self, start)
```

#### filename

```
filename(self)
```

#### title

```
title(self)
```

#### process

```
process(self)
```

#### register\_filenames

```
register_filenames(self)
```

Registers each view

#### process\_link

```
process_link(self, file, line, scope)
```

Outputs the info for one link

#### describe\_declaration

```
describe_declaration(self, decl)
```

Returns a description of the declaration. Detects constructors and destructors

#### process\_name

```
process_name(self, name)
```

Outputs the info for a given name

### **end\_file**

```
end_file(self)
```

Overrides end\_file to provide synopsis logo

## **Module XRefPager**

### **class XRefPager**

Generates pages of cross-references.

#### **page\_map**

```
page_map
```

#### **page\_info**

```
page_info
```

#### **\_\_init\_\_**

```
__init__(self, ir)
```

#### **get**

```
get(self, name)
```

Returns the number of the page that the xref info for the given name is on, or None if not found.

#### **pages**

```
pages(self)
```

Returns a list of pages, each consisting of a list of names on that page. This method is intended to be used by whatever generates the files...

## **The DocBook Formatter**

### **Packages**

- DocBook
- Markup
- Syntax

# Package DocBook

## \_summary\_syntax

```
_summary_syntax
```

## \_detail\_syntax

```
detail_syntax
```

## class Linker

Helper class to be used to resolve references from doc-strings to declarations.

### link

```
link(self, decl)
```

## class \_BaseClasses

DocBook.\_BaseClasses

### classes

```
classes
```

### classes\_once

```
classes_once
```

### \_\_init\_\_

```
__init__(self)
```

### visit\_declared\_type\_id

```
visit_declared_type_id(self, declared)
```

### visit\_class

```
visit_class(self, class_)
```

### visit\_inheritance

```
visit_inheritance(self, inheritance)
```

## class ModuleLister

DocBook.ModuleLister

Maps a module-tree to a (flat) list of modules.

**modules**

```
modules
```

**\_\_init\_\_**

```
__init__(self)
```

**visit\_module**

```
visit_module(self, module)
```

**class InheritanceFormatter****base\_dir**

```
base_dir
```

**bgcolor**

```
bgcolor
```

**\_\_init\_\_**

```
__init__(self, base_dir, bgcolor)
```

**format\_class**

```
format_class(self, class_, format)
```

**class FormatterBase****processor**

```
processor
```

**output**

```
output
```

**base\_dir**

```
base_dir
```

**nested\_modules**

```
nested_modules
```

**secondary\_index**

```
secondary_index
```

**inheritance\_graphs**

```
inheritance_graphs
```

**graph\_color**

```
graph_color
```

**\_\_scope**

```
_scope
```

**\_\_scopestack**

```
_scopestack
```

**\_\_indent**

```
_indent
```

**\_\_elements**

```
_elements
```

**\_\_init\_\_**

```
__init__(self, processor, output, base_dir, nested_modules, \
secondary_index, inheritance_graphs, graph_color)
```

**scope**

```
scope(self)
```

**push\_scope**

```
push_scope(self, newscope)
```

**pop\_scope**

```
pop_scope(self)
```

**write**

```
write(self, text)
```

Write some text to the output stream, replacing 's with 's and indents.

**start\_element**

```
start_element(self, type, params)
```

Write the start of an element, ending with a newline

**end\_element**

```
end_element(self)
```

Write the end of an element, starting with a newline

**write\_element**

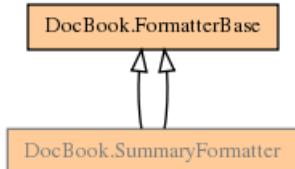
```
write_element(self, element, body, end = '\n', params)
```

Write a single element on one line (though body may contain newlines)

**element**

```
element(self, element, body, params)
```

Return but do not write the text for an element on one line

**class SummaryFormatter**

A SummaryFormatter.

**visit\_module**

```
visit_module
```

**visit\_class**

```
visit_class
```

**visit\_function**

```
visit_function
```

**process\_doc**

```
process_doc(self, decl)
```

**visit\_declaration**

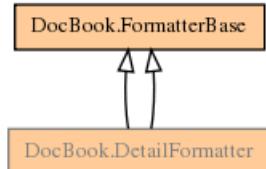
```
visit_declaration(self, declaration)
```

**visit\_meta\_module**

```
visit_meta_module(self, meta)
```

**visit\_enum**

```
visit_enum(self, enum)
```

**class DetailFormatter****visit\_function**

```
visit_function
```

**visit\_builtin\_type\_id**

```
visit_builtin_type_id(self, type)
```

**visit\_unknown\_type\_id**

```
visit_unknown_type_id(self, type)
```

**visit\_declared\_type\_id**

```
visit_declared_type_id(self, type)
```

**visit\_modifier\_type\_id**

```
visit_modifier_type_id(self, type)
```

**visit\_parametrized\_type\_id**

```
visit_parametrized_type_id(self, type)
```

**visit\_function\_type\_id**

```
visit_function_type_id(self, type)
```

**process\_doc**

```
process_doc(self, decl)
```

**visit\_declaration**

```
visit_declaration(self, declaration)
```

**generate\_module\_list**

```
generate_module_list(self, modules)
```

**format\_module\_or\_group**

```
format_module_or_group(self, module, title, sort)
```

**visit\_module**

```
visit_module(self, module)
```

**visit\_group**

```
visit_group(self, group)
```

**visit\_class**

```
visit_class(self, class_)
```

**visit\_inheritance**

```
visit_inheritance(self, inheritance)
```

**visit\_parameter**

```
visit_parameter(self, parameter)
```

**visit\_enum**

```
visit_enum(self, enum)
```

**class DocCache****\_process**

```
process(self, decl)
```

Return the documentation for the given declaration.

**\_processor**

```
processor
```

**\_markup\_formatters**

```
markup_formatters
```

**\_doc\_cache**

```
doc_cache
```

**\_init\_**

```
__init__(self, processor, markup_formatters)
```

**summary**

```
summary(self, decl)
```

**details**

```
details(self, decl)
```

**class Formatter**

DocBook.Formatter

Generate a DocBook reference.

**markup\_formatters**

```
markup_formatters
```

**title**

```
title
```

**nested\_modules**

```
nested_modules
```

**generate\_summary**

```
generate_summary
```

**hide\_undocumented**

```
hide_undocumented
```

**inline\_inherited\_members**

```
inline_inherited_members
```

**secondary\_index\_terms**

```
secondary_index_terms
```

**with\_inheritance\_graphs**

```
with_inheritance_graphs
```

**graph\_color**

```
graph_color
```

**process**

```
process(self, ir, kwds)
```

## escape

```
escape(text)
```

## reference

```
reference(name)
```

Generate an id suitable as a 'linkend' / 'id' attribute, i.e. for linking.

# Package Markup

## Modules

- Markup.Javadoc
- Markup.Markup
- Markup.RST

## Module Markup.Javadoc

### class Javadoc

```
Markup.Javadoc.Javadoc
```

A formatter that formats comments similar to Javadoc. See `Javadoc Spec`\_ for info. ... \_Javadoc Spec:  
<http://java.sun.com/j2se/1.5.0/docs/tooldocs/solaris/javadoc.html>

### class Block

#### tag

```
tag
```

#### arg

```
arg
```

#### body

```
body
```

#### \_\_init\_\_

```
__init__(self, tag, arg, body)
```

#### summary

```
summary
```

**block\_tag**

```
block_tag
```

**inline\_tag**

```
inline_tag
```

**inline\_tag\_split**

```
inline_tag_split
```

**xref**

```
xref
```

**tag\_name**

```
tag_name
```

**arg\_tags**

```
arg_tags
```

**\_\_init\_\_**

```
__init__(self)
```

Create regex objects for regexps

**split**

```
split(self, doc)
```

Split a javadoc comment into description and blocks.

**extract\_summary**

```
extract_summary(self, description)
```

Generate a summary from the given description.

**format**

```
format(self, decl)
```

Format using javadoc markup.

**format\_description**

```
format_description(self, text, decl)
```

**format\_inlines**

```
format_inlines(self, decl, text)
```

Formats inline tags in the text.

## **format\_params**

```
format_params(self, blocks, decl)
```

Formats a list of (param, description) tags

## **format\_throws**

```
format_throws(self, blocks, decl)
```

## **format\_variablelist**

```
format_variablelist(self, tag, blocks, decl)
```

Generate a variablelist for the given tag. Each matching block is formatted to a varlistentry, with the value of its 'arg' member becoming the term.

## **format\_varlistentry**

```
format_varlistentry(self, tag, blocks, decl)
```

Generate a varlistentry for the given tag. The tag value itself becomes the term. If multiple blocks match, format them as an (inlined) simplelist, otherwise as a para.

## **format\_inline\_tag**

```
format_inline_tag(self, tag, content, decl)
```

## **attributes**

```
attributes(keys)
```

Convert a name/value dict to a string of attributes

## **element**

```
element(_type, body, keys)
```

Wrap the body in a tag of given type and attributes

## **title**

```
title(name)
```

## **para**

```
para(body)
```

## **listitem**

```
listitem(body)
```

**term**

```
term(body)
```

**link**

```
link(linkend, label)
```

## Package Markup.Markup

### class Struct

#### summary

```
summary
```

#### details

```
details
```

#### \_\_init\_\_

```
__init__(self, summary = '', details = '')
```

### class Formatter

```
Markup.Markup.Formatter
```

Interface class that takes a 'doc' annotation and formats its text. Markup-specific subclasses should provide appropriate format methods.

#### \_lookup\_symbol\_in

```
_lookup_symbol_in(self, symbol, scope)
```

#### \_find\_method\_entry

```
_find_method_entry(self, name, scope)
```

#### init

```
init(self, processor)
```

#### format

```
format(self, decl)
```

Format the declaration's documentation. @param view the View to use for references and determining the correct relative filename. @param decl the declaration @returns Struct containing summary / details pair.

## lookup\_symbol

```
lookup_symbol(self, symbol, scope)
```

Given a symbol and a scope, returns an URL. Various methods are tried to resolve the symbol. First the parameters are taken off, then we try to split the symbol using '!' or '::'. The params are added back, and then we try to match this scoped name against the current scope. If that fails, then we recursively try enclosing scopes.

## escape

```
escape(text)
```

# Module Markup.RST

## class Writer

```
Markup.RST.Writer
```

### settings\_spec

```
settings_spec
```

DocBook does its own section numbering

### settings\_default\_overrides

```
settings_default_overrides
```

## output

```
output
```

Final translated form of `document`.

## translate

```
translate(self)
```

## class DocBookTranslator

```
Markup.RST.DocBookTranslator
```

## language

```
language
```

## doctype

```
doctype
```

**body**

```
body
```

**section**

```
section
```

**context**

```
context
```

**colnames**

```
colnames
```

**footnotes**

```
footnotes
```

**footnote\_map**

```
footnote_map
```

**docinfo**

```
docinfo
```

**title**

```
title
```

**subtitle**

```
subtitle
```

**visit\_problematic**

```
visit_problematic
```

**depart\_problematic**

```
depart_problematic
```

**visit\_system\_message**

```
visit_system_message
```

**depart\_system\_message**

```
depart_system_message
```

**\_\_init\_\_**

```
__init__(self, document)
```

**astext**

```
astext(self)
```

**encode**

```
encode(self, text)
```

Encode special characters in `text` & return.

**encodeattr**

```
encodeattr(self, text)
```

Encode attributes characters > 128 as &#XXX;

**rearrange\_footnotes**

```
rearrange_footnotes(self)
```

Replaces ``foonote\_reference`` placeholders with ``footnote`` element content as DocBook and reST handle footnotes differently. DocBook defines footnotes inline, whereas they may be anywhere in reST. This function replaces the first instance of a ``footnote\_reference`` with the ``footnote`` element itself, and later references of the same a footnote with ``footnoteref`` elements.

**attval**

```
attval(self, text, transtable = string.maketrans('\n\r\t\v\f', ' '))
```

Cleanse, encode, and return attribute value text.

**starttag**

```
starttag(self, node, tagname, suffix = '\n', infix = '', attributes)
```

Construct and return a start tag given a node (id & class attributes are extracted), tag name, and optional attributes.

**emptytag**

```
emptytag(self, node, tagname, suffix = '\n', attributes)
```

Construct and return an XML-compatible empty tag.

**visit\_Text**

```
visit_Text(self, node)
```

**depart\_Text**

```
depart_Text(self, node)
```

## **visit\_address**

```
visit_address(self, node)
```

## **depart\_address**

```
depart_address(self, node)
```

## **visit\_admonition**

```
visit_admonition(self, node, name = '')
```

## **depart\_admonition**

```
depart_admonition(self, node = None)
```

## **visit\_attention**

```
visit_attention(self, node)
```

## **depart\_attention**

```
depart_attention(self, node)
```

## **visit\_attribution**

```
visit_attribution(self, node)
```

## **depart\_attribution**

```
depart_attribution(self, node)
```

## **visit\_author**

```
visit_author(self, node)
```

## **visit\_authors**

```
visit_authors(self, node)
```

## **visit\_block\_quote**

```
visit_block_quote(self, node)
```

## **depart\_block\_quote**

```
depart_block_quote(self, node)
```

## **visit\_bullet\_list**

```
visit_bullet_list(self, node)
```

**depart\_bullet\_list**

```
depart_bullet_list(self, node)
```

**visit\_caption**

```
visit_caption(self, node)
```

**depart\_caption**

```
depart_caption(self, node)
```

**visit\_caution**

```
visit_caution(self, node)
```

**depart\_caution**

```
depart_caution(self, node)
```

**visit\_citation**

```
visit_citation(self, node)
```

**depart\_citation**

```
depart_citation(self, node)
```

**visit\_citation\_reference**

```
visit_citation_reference(self, node)
```

**depart\_citation\_reference**

```
depart_citation_reference(self, node)
```

**visit\_classifier**

```
visit_classifier(self, node)
```

**depart\_classifier**

```
depart_classifier(self, node)
```

**visit\_colspec**

```
visit_colspec(self, node)
```

**depart\_colspec**

```
depart_colspec(self, node)
```

**visit\_comment**

```
visit_comment(self, node, sub = re.compile('-(?=-)').sub)
```

Escape double-dashes in comment text.

**visit\_contact**

```
visit_contact(self, node)
```

**visit\_copyright**

```
visit_copyright(self, node)
```

**visit\_danger**

```
visit_danger(self, node)
```

**depart\_danger**

```
depart_danger(self, node)
```

**visit\_date**

```
visit_date(self, node)
```

**visit\_decoration**

```
visit_decoration(self, node)
```

**depart\_decoration**

```
depart_decoration(self, node)
```

**visit\_definition**

```
visit_definition(self, node)
```

**depart\_definition**

```
depart_definition(self, node)
```

**visit\_definition\_list**

```
visit_definition_list(self, node)
```

**depart\_definition\_list**

```
depart_definition_list(self, node)
```

**visit\_definition\_list\_item**

```
visit_definition_list_item(self, node)
```

**depart\_definition\_list\_item**

```
depart_definition_list_item(self, node)
```

**visit\_description**

```
visit_description(self, node)
```

**depart\_description**

```
depart_description(self, node)
```

**visit\_docinfo**

```
visit_docinfo(self, node)
```

Collects all docinfo elements for the document. Since reST's bibliography elements don't map very cleanly to DocBook, rather than maintain state and check dependencies within the different visitor functions all processing of bibliography elements is done within this function. .. NOTE:: Skips processing of all child nodes as everything should be collected here.

**depart\_docinfo**

```
depart_docinfo(self, node)
```

**visit\_doctest\_block**

```
visit_doctest_block(self, node)
```

**depart\_doctest\_block**

```
depart_doctest_block(self, node)
```

**visit\_document**

```
visit_document(self, node)
```

**depart\_document**

```
depart_document(self, node)
```

**visit\_emphasis**

```
visit_emphasis(self, node)
```

**depart\_emphasis**

```
depart_emphasis(self, node)
```

**visit\_entry**

```
visit_entry(self, node)
```

## **depart\_entry**

```
depart_entry(self, node)
```

## **visit\_enumerated\_list**

```
visit_enumerated_list(self, node)
```

## **depart\_enumerated\_list**

```
depart_enumerated_list(self, node)
```

## **visit\_error**

```
visit_error(self, node)
```

## **depart\_error**

```
depart_error(self, node)
```

## **visit\_field**

```
visit_field(self, node)
```

## **depart\_field**

```
depart_field(self, node)
```

## **visit\_field\_argument**

```
visit_field_argument(self, node)
```

## **depart\_field\_argument**

```
depart_field_argument(self, node)
```

## **visit\_field\_body**

```
visit_field_body(self, node)
```

## **depart\_field\_body**

```
depart_field_body(self, node)
```

## **visit\_field\_list**

```
visit_field_list(self, node)
```

## **depart\_field\_list**

```
depart_field_list(self, node)
```

**visit\_field\_name**

```
visit_field_name(self, node)
```

**depart\_field\_name**

```
depart_field_name(self, node)
```

**visit\_figure**

```
visit_figure(self, node)
```

**depart\_figure**

```
depart_figure(self, node)
```

**visit\_footer**

```
visit_footer(self, node)
```

**depart\_footer**

```
depart_footer(self, node)
```

**visit\_footnote**

```
visit_footnote(self, node)
```

**depart\_footnote**

```
depart_footnote(self, node)
```

**visit\_footnote\_reference**

```
visit_footnote_reference(self, node)
```

**visit\_header**

```
visit_header(self, node)
```

**depart\_header**

```
depart_header(self, node)
```

**visit\_generated**

```
visit_generated(self, node)
```

**depart\_generated**

```
depart_generated(self, node)
```

## **visit\_hint**

```
visit_hint(self, node)
```

## **depart\_hint**

```
depart_hint(self, node)
```

## **visit\_image**

```
visit_image(self, node)
```

## **depart\_image**

```
depart_image(self, node)
```

## **visit\_important**

```
visit_important(self, node)
```

## **depart\_important**

```
depart_important(self, node)
```

## **visit\_interpreted**

```
visit_interpreted(self, node)
```

## **depart\_interpreted**

```
depart_interpreted(self, node)
```

## **visit\_label**

```
visit_label(self, node)
```

## **depart\_label**

```
depart_label(self, node)
```

## **visit\_legend**

```
visit_legend(self, node)
```

## **depart\_legend**

```
depart_legend(self, node)
```

## **visit\_line\_block**

```
visit_line_block(self, node)
```

**depart\_line\_block**

```
depart_line_block(self, node)
```

**visit\_list\_item**

```
visit_list_item(self, node)
```

**depart\_list\_item**

```
depart_list_item(self, node)
```

**visit\_literal**

```
visit_literal(self, node)
```

**depart\_literal**

```
depart_literal(self, node)
```

**visit\_literal\_block**

```
visit_literal_block(self, node)
```

**depart\_literal\_block**

```
depart_literal_block(self, node)
```

**visit\_note**

```
visit_note(self, node)
```

**depart\_note**

```
depart_note(self, node)
```

**visit\_option**

```
visit_option(self, node)
```

**depart\_option**

```
depart_option(self, node)
```

**visit\_option\_argument**

```
visit_option_argument(self, node)
```

**depart\_option\_argument**

```
depart_option_argument(self, node)
```

**visit\_option\_group**

```
visit_option_group(self, node)
```

**depart\_option\_group**

```
depart_option_group(self, node)
```

**visit\_option\_list**

```
visit_option_list(self, node)
```

**depart\_option\_list**

```
depart_option_list(self, node)
```

**visit\_option\_list\_item**

```
visit_option_list_item(self, node)
```

**depart\_option\_list\_item**

```
depart_option_list_item(self, node)
```

**visit\_option\_string**

```
visit_option_string(self, node)
```

**depart\_option\_string**

```
depart_option_string(self, node)
```

**visit\_organization**

```
visit_organization(self, node)
```

**visit\_paragraph**

```
visit_paragraph(self, node)
```

**depart\_paragraph**

```
depart_paragraph(self, node)
```

**visit\_raw**

```
visit_raw(self, node)
```

**visit\_reference**

```
visit_reference(self, node)
```

**depart\_reference**

```
depart_reference(self, node)
```

**visit\_revision**

```
visit_revision(self, node)
```

**visit\_row**

```
visit_row(self, node)
```

**depart\_row**

```
depart_row(self, node)
```

**visit\_rubric**

```
visit_rubric(self, node)
```

**depart\_rubric**

```
depart_rubric(self, node)
```

**visit\_section**

```
visit_section(self, node)
```

**depart\_section**

```
depart_section(self, node)
```

**visit\_sidebar**

```
visit_sidebar(self, node)
```

**depart\_sidebar**

```
depart_sidebar(self, node)
```

**visit\_status**

```
visit_status(self, node)
```

**visit\_strong**

```
visit_strong(self, node)
```

**depart\_strong**

```
depart_strong(self, node)
```

## **visit\_subscript**

```
visit_subscript(self, node)
```

## **depart\_subscript**

```
depart_subscript(self, node)
```

## **visit\_substitution\_definition**

```
visit_substitution_definition(self, node)
```

## **visit\_substitution\_reference**

```
visit_substitution_reference(self, node)
```

## **visit\_subtitle**

```
visit_subtitle(self, node)
```

## **depart\_subtitle**

```
depart_subtitle(self, node)
```

## **visit\_superscript**

```
visit_superscript(self, node)
```

## **depart\_superscript**

```
depart_superscript(self, node)
```

## **visit\_table**

```
visit_table(self, node)
```

## **depart\_table**

```
depart_table(self, node)
```

## **visit\_target**

```
visit_target(self, node)
```

## **depart\_target**

```
depart_target(self, node)
```

## **visit\_tbody**

```
visit_tbody(self, node)
```

## **depart\_tbody**

```
depart_tbody(self, node)
```

## **visit\_term**

```
visit_term(self, node)
```

## **depart\_term**

```
depart_term(self, node)
```

## **visit\_tgroup**

```
visit_tgroup(self, node)
```

## **depart\_tgroup**

```
depart_tgroup(self, node)
```

## **visitthead**

```
visitthead(self, node)
```

## **departthead**

```
departthead(self, node)
```

## **visit\_tip**

```
visit_tip(self, node)
```

## **depart\_tip**

```
depart_tip(self, node)
```

## **visit\_title**

```
visit_title(self, node)
```

## **depart\_title**

```
depart_title(self, node)
```

## **visit\_title\_reference**

```
visit_title_reference(self, node)
```

## **depart\_title\_reference**

```
depart_title_reference(self, node)
```

**visit\_topic**

```
visit_topic(self, node)
```

**depart\_topic**

```
depart_topic(self, node)
```

**visit\_transition**

```
visit_transition(self, node)
```

**depart\_transition**

```
depart_transition(self, node)
```

**visit\_version**

```
visit_version(self, node)
```

**visit\_warning**

```
visit_warning(self, node)
```

**depart\_warning**

```
depart_warning(self, node)
```

**unimplemented\_visit**

```
unimplemented_visit(self, node)
```

**class SummaryExtractor**

Markup.RST.SummaryExtractor

A SummaryExtractor creates a document containing the first sentence of a source document.

**summary**

```
summary
```

**\_\_init\_\_**

```
__init__(self, document)
```

**visit\_paragraph**

```
visit_paragraph(self, node)
```

Copy the paragraph but only keep the first sentence.

## unknown\_visit

```
unknown_visit(self, node)
```

Ignore all unknown nodes

## class RST

```
Markup.RST.RST
```

Format summary and detail documentation according to restructured text markup.

### format

```
format(self, decl)
```

## Module Syntax

## class Syntax

```
Syntax.Syntax
```

Even though DocBook provides markup for some programming artifacts, it is incomplete, and the XSL stylesheets are buggy, resulting in incorrect syntax. Thus, we use the 'synopsis' element, and attempt to reproduce the original syntax with language-specific subclasses.

### output

```
output
```

### \_\_init\_\_

```
__init__(self, output)
```

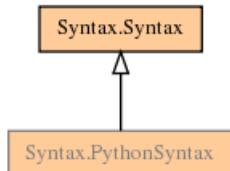
### finish

```
finish(self)
```

### typeid

```
typeid(self, type)
```

## class PythonSyntax



**visit\_function**

```
visit_function(self, node)
```

**visit\_parameter**

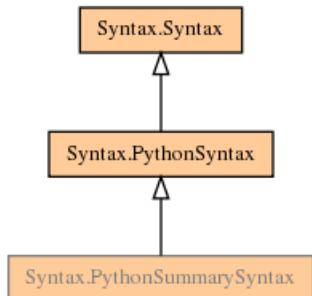
```
visit_parameter(self, parameter)
```

**visit\_variable**

```
visit_variable(self, variable)
```

**visit\_const**

```
visit_const(self, const)
```

**class PythonSummarySyntax**

Generate DocBook Synopsis for Python declarations.

**\_\_init\_\_**

```
__init__(self, output)
```

**finish**

```
finish(self)
```

**visit\_group**

```
visit_group(self, node)
```

**visit\_module**

```
visit_module(self, module)
```

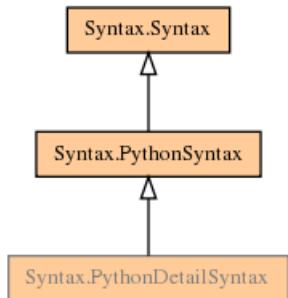
**visit\_class**

```
visit_class(self, class_)
```

**visit\_inheritance**

```
visit_inheritance(self, node)
```

## class PythonDetailSyntax



Generate DocBook Synopsis for Python declarations.

### \_\_init\_\_

```
__init__(self, output)
```

### **finish**

```
finish(self)
```

### **visit\_group**

```
visit_group(self, node)
```

### **visit\_module**

```
visit_module(self, module)
```

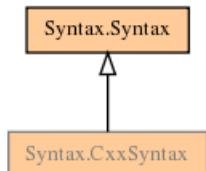
### **visit\_class**

```
visit_class(self, class_)
```

### **visit\_inheritance**

```
visit_inheritance(self, node)
```

## class CxxSyntax



### **visit\_function**

```
visit_function(self, node)
```

### **visit\_parameter**

```
visit_parameter(self, parameter)
```

## **visit\_typedef**

```
visit_typedef(self, node)
```

## **visit\_variable**

```
visit_variable(self, variable)
```

## **visit\_const**

```
visit_const(self, const)
```

## **visit\_builtin\_type\_id**

```
visit_builtin_type_id(self, type)
```

## **visit\_unknown\_type\_id**

```
visit_unknown_type_id(self, type)
```

## **visit\_declared\_type\_id**

```
visit_declared_type_id(self, type)
```

## **visit\_modifier\_type\_id**

```
visit_modifier_type_id(self, type)
```

## **visit\_array\_type\_id**

```
visit_array_type_id(self, type)
```

## **visit\_template\_id**

```
visit_template_id(self, type)
```

## **visit\_parametrized\_type\_id**

```
visit_parametrized_type_id(self, type)
```

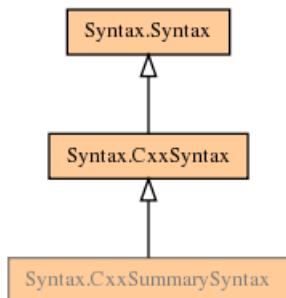
## **visit\_function\_type\_id**

```
visit_function_type_id(self, type)
```

## **visit\_dependent\_type\_id**

```
visit_dependent_type_id(self, type)
```

## class CxxSummarySyntax



Generate DocBook Synopsis for C++ declarations.

### **\_\_init\_\_**

```
__init__(self, output)
```

### **finish**

```
finish(self)
```

### **visit\_macro**

```
visit_macro(self, macro)
```

### **visit\_forward**

```
visit_forward(self, node)
```

### **visit\_group**

```
visit_group(self, node)
```

### **visit\_module**

```
visit_module(self, module)
```

### **visit\_class**

```
visit_class(self, class_)
```

### **visit\_class\_template**

```
visit_class_template(self, class_)
```

### **visit\_enumerator**

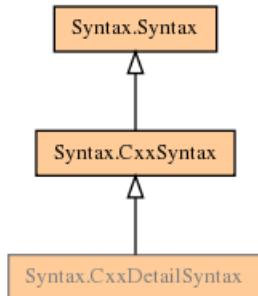
```
visit_enumerator(self, node)
```

### **visit\_enum**

```
visit_enum(self, node)
```

**visit\_inheritance**

```
visit_inheritance(self, node)
```

**class CxxDetailSyntax**

Generate DocBook Synopsis for C++ declarations.

**\_\_init\_\_**

```
__init__(self, output)
```

**finish**

```
finish(self)
```

**visit\_macro**

```
visit_macro(self, macro)
```

**visit\_forward**

```
visit_forward(self, node)
```

**visit\_group**

```
visit_group(self, node)
```

**visit\_module**

```
visit_module(self, module)
```

**visit\_class**

```
visit_class(self, class_)
```

**visit\_class\_template**

```
visit_class_template(self, node)
```

**visit\_enumerator**

```
visit_enumerator(self, node)
```

**visit\_enum**

```
visit_enum(self, node)
```

**visit\_inheritance**

```
visit_inheritance(self, node)
```

**escape**

```
escape(text)
```

# The SXR Formatter

## class Formatter

Formatter

This is a facade to the HTML.Formatter. It adds an 'url' parameter and dispatches it to various 'views'.

**title**

```
title
```

**url**

```
url
```

**sxr\_prefix**

```
sxr_prefix
```

**src\_dir**

```
src_dir
```

**exclude**

```
exclude
```

**sxr\_template**

```
sxr_template
```

**stylesheet**

```
stylesheet
```

## process

```
process(self, ir, kwds)
```

## class SXRIndex

SXRIndex

Top level Index View. This is the starting point for the SXR browser.

## sxr\_cgi

```
sxr_cgi
```

## filename

```
filename(self)
```

## title

```
title(self)
```

## root

```
root(self)
```

## process

```
process(self)
```

Recursively visit each directory below the base path given in the config.

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