FCAL Language Converter Project

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Chapter 1

DSL Project Index Page

1.1 Introduction

The purpose of this assignment is to convert a matlab type language dubbed fcal, into c++ style format, with proper checking for syntatical, semantical, and lexical errors.

1.2 Members

Xukun Qin 5188260 Dalton Stokke 4117123

1.3 Test

To test this program type : make run-tests You can also type : make cpp cpp is a target in the Makefile that will run the linter.

1.4 Structure

This program utilizes multiple classes to function as nodes containing information about various parts of our matlab type language. Specifically the token class in the scanner namespace and all classes that are members of the ast namespace, these include the abstract super classes Node, Program, Stmts, Stmt, Expr, and Decl, as well as all of their subsequent sub-classes. The classes in the ast namespace serve as members of an Abstract Syntax Tree, the ast can be created by calling parse on a .dsl file and this can also be undone by calling unparse to recreate that file. See UML_Iteration3.pdf in project/ directory for more details on ast structure.

1.5 Brief

This Brief is an arch-comment for each concrete class that inherits from the abstract classes Program, Stmts, Stmt, Decl, and Expr: These classes will implement their own defination of the unparse() funciton, and have their own constructors which will take in different numbers of parameters, namely some assortment of type std::string, Expr$*$, Decl$*$, Stmts$*$, and Stmt$*$. Some classes are further explanined with more comments decribing unusual parameters or function. See below.

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

fcal 11
fcal::ast 11
fcal::parser 12
fcal::scanner 12

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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fcal::scanner::CharConstToken . . . 23
fcal::scanner::DashToken . . . 27
fcal::scanner::EndOfFileToken . . . 36
fcal::scanner::FalseKwdToken . . . 41
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fcal::scanner::IfToken . . . 58
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fcal::scanner::LetToken . . . 68
fcal::scanner::NotOpToken . . . 87
fcal::scanner::PlusSignToken . . . 97
fcal::scanner::RelationalOpToken . . . 105
fcal::scanner::StarToken . . . 116
fcal::scanner::StringConstToken . . . 123
fcal::scanner::TrueKwdToken . . . 128
fcal::scanner::VariableNameToken . . . 133
MySequence< T, N > . . . 81
fcal::ast::Node . . . 84
fcal::ast::Decl . . . 29
fcal::ast::booleanDecl . . . 19
fcal::ast::floatDecl . . . 46
fcal::ast::intDecl . . . 62
fcal::ast::matrixDecl . . . 70
fcal::ast::matrixDecl2 . . . 72
fcal::ast::stringDecl . . . 125
fcal::ast::Expr . . . 38
fcal::ast::andExpr . . . 17
fcal::ast::booleanExpr . . . 21
fcal::ast::constExpr . . . 25
fcal::ast::divExpr . . . 32
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fcal::ast::nestedExpr . . . 82
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fcal::ast::Stmt . . . 118
fcal::ast::declStmt . . . 30
fcal::ast::ifelseStmt . . . 52
fcal::ast::ifStmt . . . 56
fcal::ast::printStmt . . . 99
fcal::ast::repeatStmt . . . 109
fcal::ast::semiStmt . . . 112
fcal::ast::stmtsStmt . . . 121
fcal::ast::variableStmt . . . 135
fcal::ast::whileStmt . . . 137
fcal::ast::Stmts . . . 119
fcal::ast::emptyStmts . . . 34
fcal::ast::seqStmts . . . 114
fcal::parser::Parser . . . 91
fcal::parser::ParseResult . . . 93
fcal::scanner::Scanner . . . 111
fcal::scanner::Token . . . 127

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

fcal::ast::andExpr . . . 17
fcal::ast::booleanDecl . . . 19
fcal::ast::booleanExpr . . . 21
fcal::scanner::CharConstToken . . . 23
fcal::ast::constExpr . . . 25
fcal::scanner::DashToken . . . 27
fcal::ast::Decl . . . 29
fcal::ast::declStmt . . . 30
fcal::ast::divExpr . . . 32
fcal::ast::emptyStmts . . . 34
fcal::scanner::EndOfFileToken . . . 36
fcal::ast::Expr . . . 38
fcal::scanner::ExtToken . . . 39
fcal::scanner::FalseKwdToken . . . 41
fcal::scanner::FloatConstToken . . . 44
fcal::ast::floatDecl . . . 46
fcal::scanner::ForwardSlashToken . . . 48
fcal::ast::functionCallExpr . . . 50
fcal::ast::ifelseStmt . . . 52
fcal::ast::ifExpr . . . 54
fcal::ast::ifStmt . . . 56
fcal::scanner::IfToken . . . 58
fcal::scanner::IntConstToken . . . 60
fcal::ast::intDecl . . . 62
fcal::scanner::LeftParenToken . . . 64
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fcal::scanner::LetToken . . . 68
fcal::ast::matrixDecl . . . 70
fcal::ast::matrixDecl2 . . . 72
fcal::ast::MatrixExpr . . . 75
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fcal::ast::orExpr . . . 89
fcal::parser::Parser . . . 91
fcal::parser::ParseResult . . . 93
fcal::ast::plusExpr . . . 94
fcal::scanner::PlusSignToken . . . 97
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5.1 File List

Here is a list of all files with brief descriptions:

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include/decl.h . . . 140
include/declarations.h . . . 142
include/expr.h . . . 144
include/ext_token.h . . . 146
include/mainpage.h . . . 147
include/parse_result.h . . . 147
include/parser.h . . . 148
include/program.h . . . 150
include/read_input.h . . . 151
include/regex.h . . . 152
include/scanner.h . . . 153
include/stmt.h . . . 154
include/stmts.h . . . 156
include/token.h . . . 157
src/ext_token.cc . . . 159
src/parser.cc . . . 160
src/read_input.cc . . . 160
src/regex.cc . . . 161
src/scanner.cc . . . 162
src/templates.cc . . . 163
src/token.cc . . . 163

Chapter 6

Namespace Documentation

6.1 fcal Namespace Reference

Namespaces

- ast
- parser
- scanner

6.2 fcal::ast Namespace Reference

Classes

- class andExpr
- class booleanDecl
- class booleanExpr
- class constExpr
- class Decl
- class declStmt
- class divExpr
- class emptyStmts
- class Expr
- class floatDecl
- class functionCallExpr
- class ifelseStmt
- class ifExpr
- class ifStmt
- class intDecl
- class letExpr
- class matrixDecl
- class matrixDecl2
- class MatrixExpr
- class minusExpr
- class mulExpr
- class nestedExpr
- class Node

- class notExpr
- class orExpr
- class plusExpr
- class printStmt
- class Program
- class program
- class relationshipExpr
- class repeatStmt
- class semiStmt
- class seqStmts
- class Stmt
- class Stmts
- class stmtsStmt
- class stringDecl
- class varExpr
- class variableStmt
- class whileStmt

6.3 fcal::parser Namespace Reference

Classes

- class Parser
- class ParseResult

6.4 fcal::scanner Namespace Reference

Classes

- class CharConstToken
- class DashToken
- class EndOfFileToken
- class ExtToken
- class FalseKwdToken
- class FloatConstToken
- class ForwardSlashToken
- class IfToken
- class IntConstToken
- class LeftParenToken
- class LetToken
- class NotOpToken
- class PlusSignToken
- class RelationalOpToken
- class Scanner
- class StarToken
- class StringConstToken
- class Token
- class TrueKwdToken
- class VariableNameToken

Typedefs

- typedef enum kTokenEnumType TokenType

Enumerations

- enum kTokenEnumType {
  kIntKwd, kFloatKwd, kBoolKwd, kTrueKwd,
  kFalseKwd, kStringKwd, kMatrixKwd, kLetKwd,
  kInKwd, kEndKwd, kIfKwd, kThenKwd,
  kElseKwd, kRepeatKwd, kWhileKwd, kPrintKwd,
  kToKwd, kIntConst, kFloatConst, kStringConst,
  kVariableName, kLeftParen, kRightParen, kLeftCurly,
  kRightCurly, kLeftSquare, kRightSquare, kSemiColon,
  kColon, kAssign, kPlusSign, kStar,
  kDash, kForwardSlash, kLessThan, kLessThanEqual,
  kGreaterThan, kGreaterThanEqual, kEqualsEquals, kNotEquals,
  kAndOp, kOrOp, kNotOp, kEndOfFile,
  kLexicalError }

Functions

- char * ReadInputFromFile (const char *filename)
- char * ReadInput (int argc, char **argv)
- regex_t * make_regex (const char *pattern)
- int match_regex (regex_t *re, const char *text)
- void print (Token *head)

Variables

- const int kRegexNSub = 1

6.4.1 Typedef Documentation

6.4.1.1 typedef enum kTokenEnumType fcal::scanner::TokenType

6.4.2 Enumeration Type Documentation

6.4.2.1 enum fcal::scanner::kTokenEnumType

Enumerator

kIntKwd

kFloatKwd

kBoolKwd

kTrueKwd

kFalseKwd

kStringKwd

kMatrixKwd

kLetKwd
kInKwd
kEndKwd
kIfKwd
kThenKwd
kElseKwd
kRepeatKwd
kWhileKwd
kPrintKwd
kToKwd
kIntConst
kFloatConst
kStringConst
kVariableName
kLeftParen
kRightParen
kLeftCurly
kRightCurly
kLeftSquare
kRightSquare
kSemiColon
kColon
kAssign
kPlusSign
kStar
kDash
kForwardSlash
kLessThan
kLessThanEqual
kGreaterThan
kGreaterThanEqual
kEqualsEquals
kNotEquals
kAndOp
kOrOp
kNotOp
kEndOfFile
kLexicalError

6.4.3 Function Documentation

6.4.3.1 regex_t * fcal::scanner::make_regex (const char * *pattern*)

6.4.3.2 int fcal::scanner::match_regex (regex_t * *re,* const char * *text*)

6.4.3.3 void fcal::scanner::print (Token * *head*)

6.4.3.4 char * fcal::scanner::ReadInput (int *argc,* char ** *argv*)

ReadInput() - Read a file into a char buffer. The calling function is responsible for disposing of the return memory.

RETURN: char* - The buffer, or NULL if an error occurred.

6.4.3.5 char * fcal::scanner::ReadInputFromFile (const char * *filename*)

ReadInputFromFile() - Do the actual reading of the file into the buffer

RETURN: char* - The buffer, or NULL if an error occurred.

6.4.4 Variable Documentation

6.4.4.1 const int fcal::scanner::kRegexNSub = 1

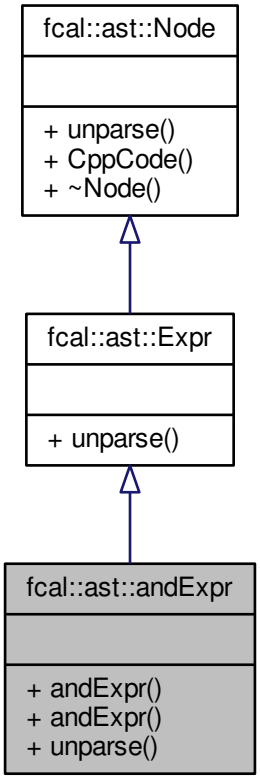
Chapter 7

Class Documentation

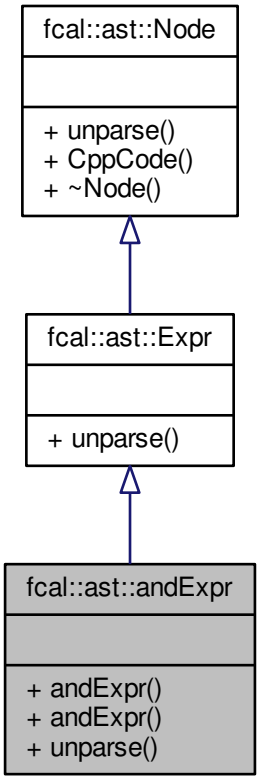
7.1 fcal::ast::andExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::andExpr:



Collaboration diagram for fcal::ast::andExpr:



Public Member Functions

- andExpr ()
- andExpr (Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.1.1 Constructor & Destructor Documentation

7.1.1.1 fcal::ast::andExpr::andExpr ( )

7.1.1.2 fcal::ast::andExpr::andExpr (Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.1.2 Member Function Documentation

7.1.2.1 std::string fcal::ast::andExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

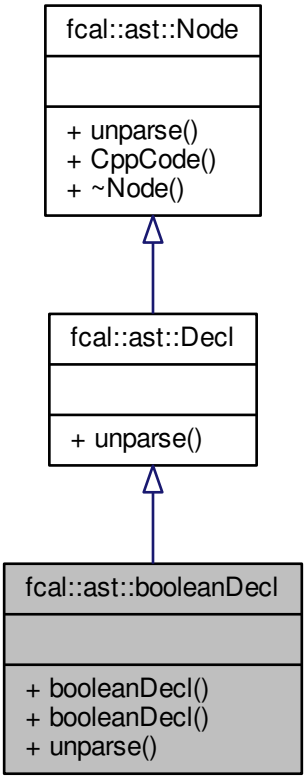
The documentation for this class was generated from the following file:

- include/expr.h

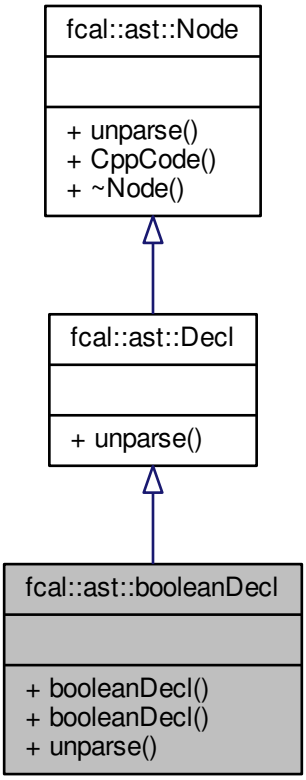
7.2 fcal::ast::booleanDecl Class Reference

`#include <decl.h>`

Inheritance diagram for fcal::ast::booleanDecl:



Collaboration diagram for fcal::ast::booleanDecl:



Public Member Functions

- booleanDecl ()
- booleanDecl (std::string s1)
- std::string unparse (void)

7.2.1 Constructor & Destructor Documentation

7.2.1.1 fcal::ast::booleanDecl::booleanDecl ( )

7.2.1.2 fcal::ast::booleanDecl::booleanDecl (std::string *s1*) [inline], [explicit]

7.2.2 Member Function Documentation

7.2.2.1 std::string fcal::ast::booleanDecl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

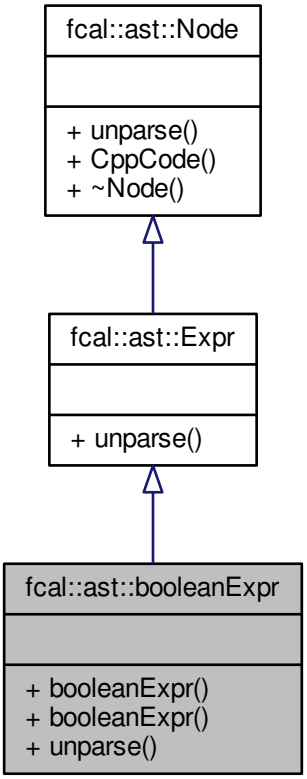
The documentation for this class was generated from the following file:

- include/decl.h

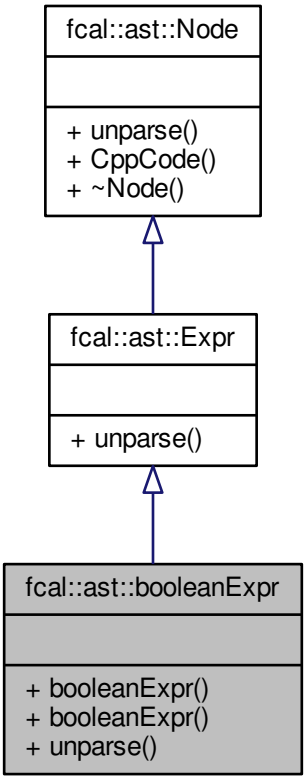
7.3 fcal::ast::booleanExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::booleanExpr:



Collaboration diagram for fcal::ast::booleanExpr:



Public Member Functions

- booleanExpr ()
- booleanExpr (int i1)
- std::string unparse (void)

7.3.1 Constructor & Destructor Documentation

7.3.1.1 fcal::ast::booleanExpr::booleanExpr ( )

7.3.1.2 fcal::ast::booleanExpr::booleanExpr (int *i1*) [inline], [explicit]

7.3.2 Member Function Documentation

7.3.2.1 std::string fcal::ast::booleanExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

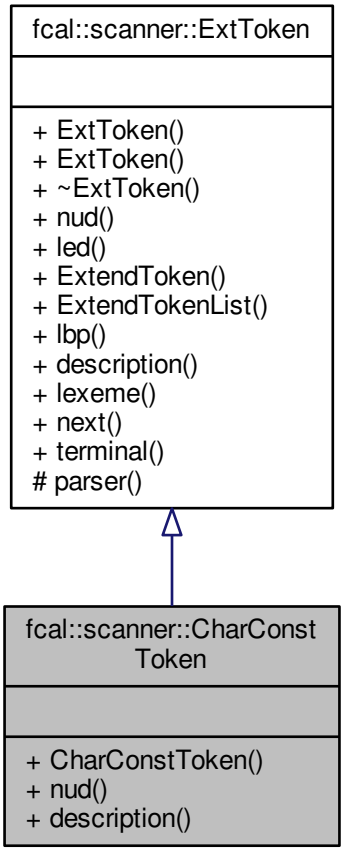
The documentation for this class was generated from the following file:

- include/expr.h

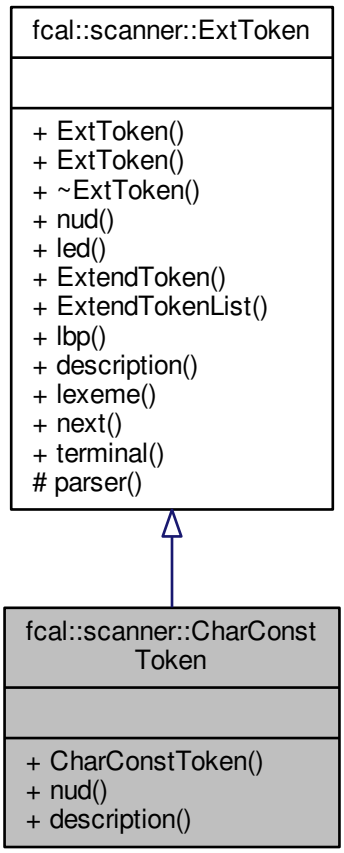
7.4 fcal::scanner::CharConstToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::CharConstToken:



Collaboration diagram for fcal::scanner::CharConstToken:



Public Member Functions

- CharConstToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.4.1 Constructor & Destructor Documentation

7.4.1.1 fcal::scanner::CharConstToken::CharConstToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.4.2 Member Function Documentation

7.4.2.1 std::string fcal::scanner::CharConstToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.4.2.2 parser::ParseResult fcal::scanner::CharConstToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

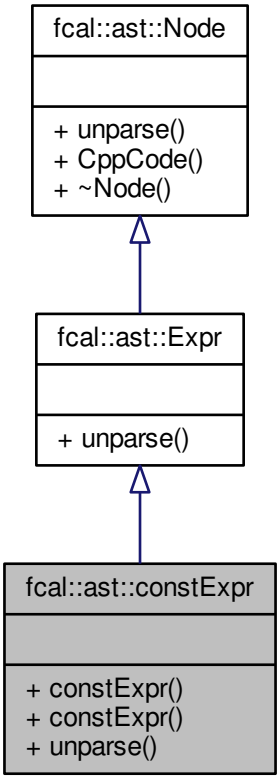
The documentation for this class was generated from the following file:

- include/ext_token.h

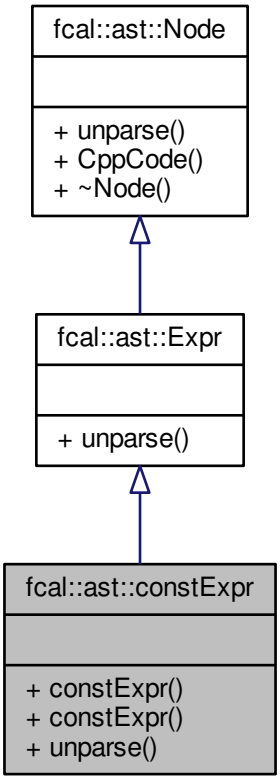
7.5 fcal::ast::constExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::constExpr:



Collaboration diagram for fcal::ast::constExpr:



Public Member Functions

- constExpr ()
- constExpr (std::string s1)
- std::string unparse (void)

7.5.1 Constructor & Destructor Documentation

7.5.1.1 fcal::ast::constExpr::constExpr ( )

7.5.1.2 fcal::ast::constExpr::constExpr (std::string *s1*) [inline], [explicit]

7.5.2 Member Function Documentation

7.5.2.1 std::string fcal::ast::constExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

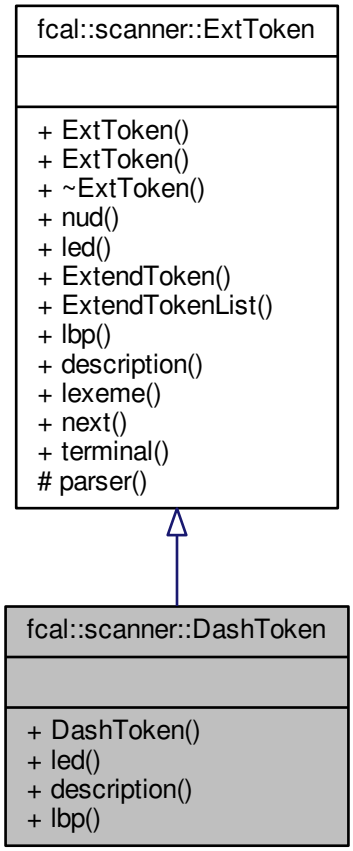
The documentation for this class was generated from the following file:

- include/expr.h

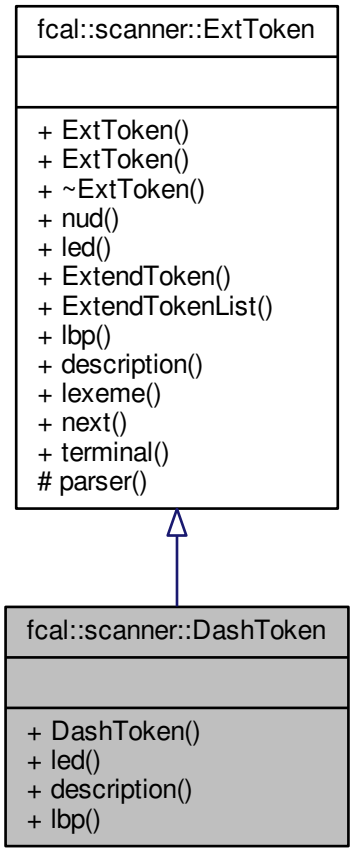
7.6 fcal::scanner::DashToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::DashToken:



Collaboration diagram for fcal::scanner::DashToken:



Public Member Functions

- DashToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult led (parser::ParseResult left)
- std::string description ()
- int lbp ()

Additional Inherited Members

7.6.1 Constructor & Destructor Documentation

7.6.1.1 fcal::scanner::DashToken::DashToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.6.2 Member Function Documentation

7.6.2.1 std::string fcal::scanner::DashToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.6.2.2 int fcal::scanner::DashToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.6.2.3 parser::ParseResult fcal::scanner::DashToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

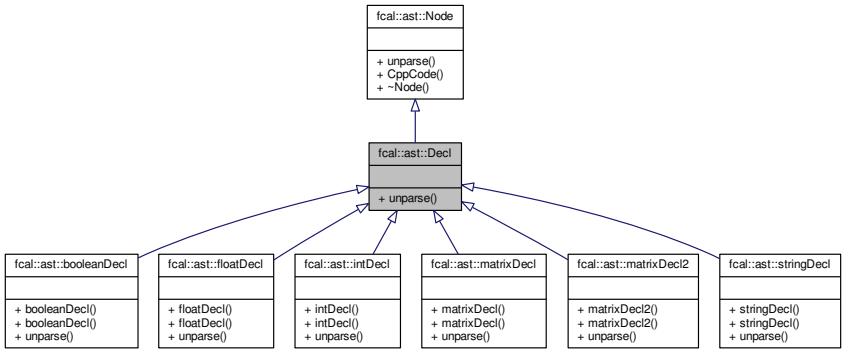
The documentation for this class was generated from the following file:

- include/ext_token.h

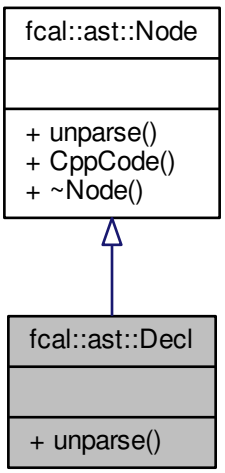
7.7 fcal::ast::Decl Class Reference

`#include <declarations.h>`

Inheritance diagram for fcal::ast::Decl:



Collaboration diagram for fcal::ast::Decl:



Public Member Functions

- virtual std::string unparse (void)

7.7.1 Detailed Description

Decl is the base abstract class for declarations in our fcal dsl language.

7.7.2 Member Function Documentation

7.7.2.1 virtual std::string fcal::ast::Decl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Node.

Reimplemented in fcal::ast::booleanDecl, fcal::ast::stringDecl, fcal::ast::floatDecl, fcal::ast::intDecl, fcal::ast::matrixDecl2, and fcal::ast::matrixDecl.

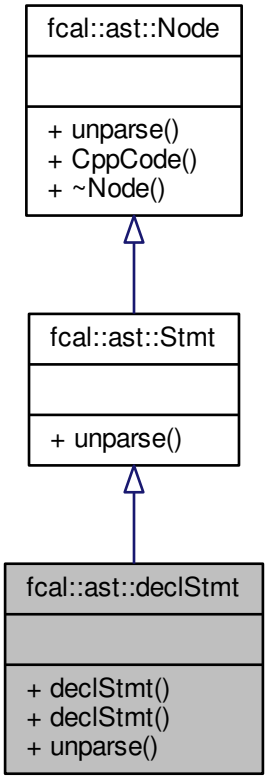
The documentation for this class was generated from the following file:

- include/declarations.h

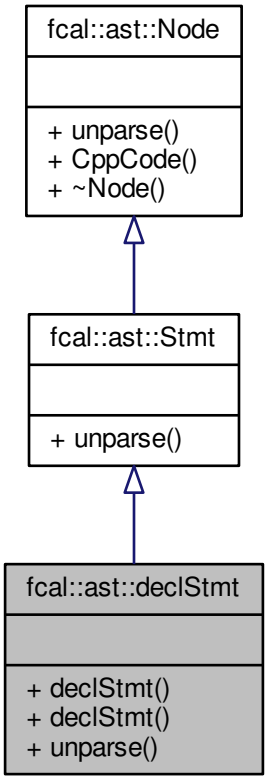
7.8 fcal::ast::declStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::declStmt:



Collaboration diagram for fcal::ast::declStmt:



Public Member Functions

- declStmt ()
- declStmt (Decl *d1)
- std::string unparse (void)

7.8.1 Constructor & Destructor Documentation

7.8.1.1 fcal::ast::declStmt::declStmt ( )

7.8.1.2 fcal::ast::declStmt::declStmt (Decl * *d1*) [inline], [explicit]

7.8.2 Member Function Documentation

7.8.2.1 std::string fcal::ast::declStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

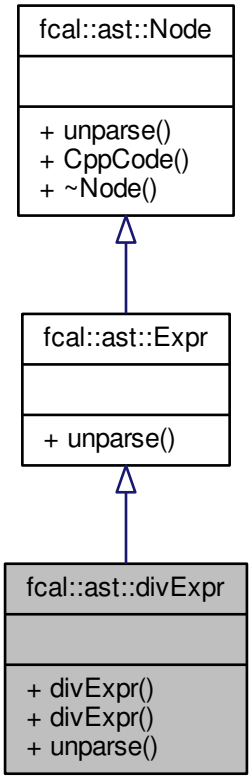
The documentation for this class was generated from the following file:

- include/stmt.h

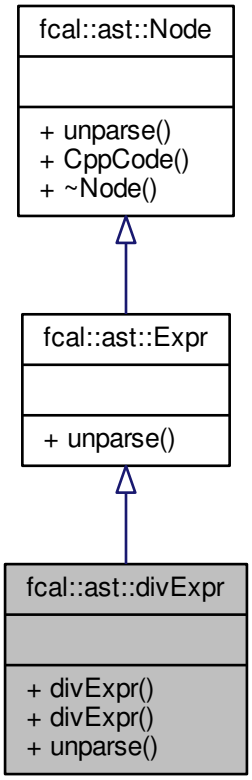
7.9 fcal::ast::divExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::divExpr:



Collaboration diagram for fcal::ast::divExpr:



Public Member Functions

- divExpr ()
- divExpr (Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.9.1 Constructor & Destructor Documentation

7.9.1.1 fcal::ast::divExpr::divExpr ( )

7.9.1.2 fcal::ast::divExpr::divExpr (Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.9.2 Member Function Documentation

7.9.2.1 std::string fcal::ast::divExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

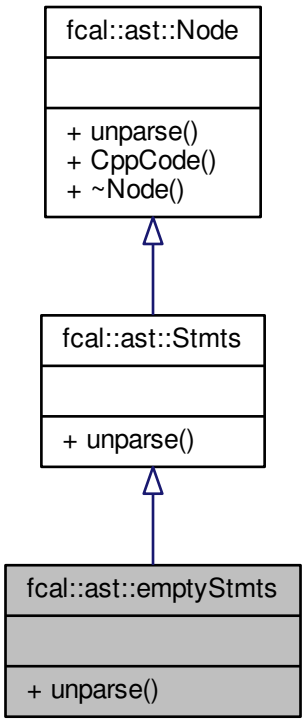
The documentation for this class was generated from the following file:

- include/expr.h

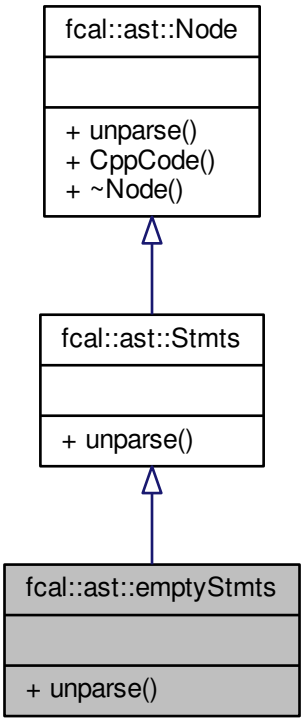
7.10 fcal::ast::emptyStmts Class Reference

`#include <stmts.h>`

Inheritance diagram for fcal::ast::emptyStmts:



Collaboration diagram for fcal::ast::emptyStmts:



Public Member Functions

- std::string unparse (void)

7.10.1 Member Function Documentation

7.10.1.1 std::string fcal::ast::emptyStmts::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmts.

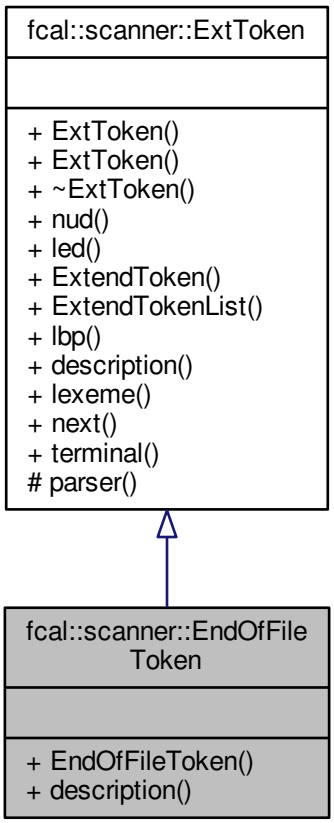
The documentation for this class was generated from the following file:

- include/stmts.h

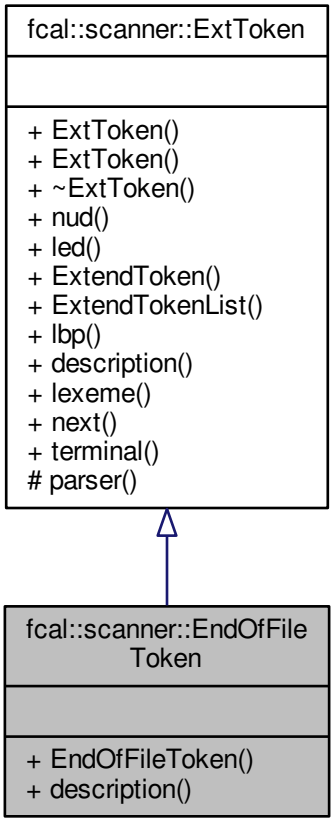
7.11 fcal::scanner::EndOfFileToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::EndOfFileToken:



Collaboration diagram for fcal::scanner::EndOfFileToken:



Public Member Functions

- EndOfFileToken (parser::Parser ∗p, Token ∗t)
- std::string description ()

Additional Inherited Members

7.11.1 Constructor & Destructor Documentation

7.11.1.1 fcal::scanner::EndOfFileToken::EndOfFileToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.11.2 Member Function Documentation

7.11.2.1 std::string fcal::scanner::EndOfFileToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

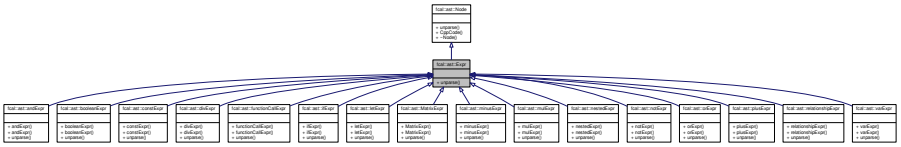
The documentation for this class was generated from the following file:

- include/ext_token.h

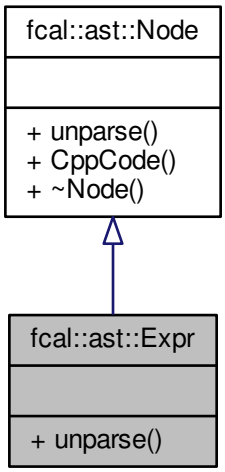
7.12 fcal::ast::Expr Class Reference

`#include <declarations.h>`

Inheritance diagram for fcal::ast::Expr:



Collaboration diagram for fcal::ast::Expr:



Public Member Functions

- virtual std::string unparse (void)

7.12.1 Detailed Description

Expr is the base abstract class for expressions in our fcal dsl language.

7.12.2 Member Function Documentation

7.12.2.1 virtual std::string fcal::ast::Expr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Node.

Reimplemented in fcal::ast::notExpr, fcal::ast::ifExpr, fcal::ast::letExpr, fcal::ast::functionCallExpr, fcal::ast::nestedExpr, fcal::ast::MatrixExpr, fcal::ast::booleanExpr, fcal::ast::constExpr, fcal::ast::varExpr, fcal::ast::orExpr, fcal::ast::andExpr, fcal::ast::relationshipExpr, fcal::ast::mulExpr, fcal::ast::divExpr, fcal::ast::minusExpr, and fcal::ast::plusExpr.

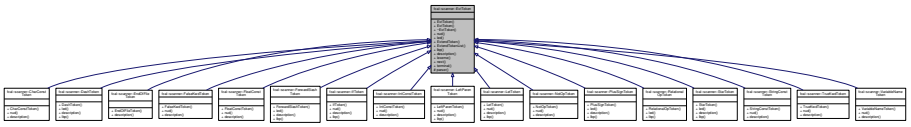
The documentation for this class was generated from the following file:

- include/declarations.h

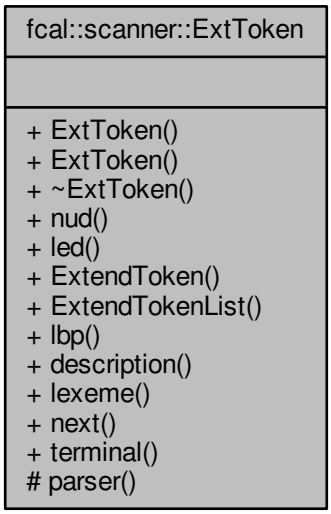
7.13 fcal::scanner::ExtToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::ExtToken:



Collaboration diagram for fcal::scanner::ExtToken:



Public Member Functions

- ExtToken (parser::Parser ∗p, Token ∗t)
- ExtToken (parser::Parser ∗p, Token ∗t, std::string d)
- virtual ∼ExtToken ()
- virtual parser::ParseResult nud (void)
- virtual parser::ParseResult led (parser::ParseResult left)
- ExtToken ∗ ExtendToken (parser::Parser ∗p, Token ∗tokens)
- ExtToken ∗ ExtendTokenList (parser::Parser ∗p, Token ∗tokens)
- virtual int lbp ()
- virtual std::string description ()
- std::string lexeme (void) const
- ExtToken ∗ next (void) const
- scanner::TokenType terminal (void) const

Protected Member Functions

- parser::Parser ∗ parser (void)

7.13.1 Constructor & Destructor Documentation

7.13.1.1 fcal::scanner::ExtToken::ExtToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.13.1.2 fcal::scanner::ExtToken::ExtToken (parser::Parser ∗ *p*, Token ∗ *t*, std::string *d*) [inline]

7.13.1.3 virtual fcal::scanner::ExtToken::∼ExtToken ( ) [inline], [virtual]

7.13.2 Member Function Documentation

7.13.2.1 virtual std::string fcal::scanner::ExtToken::description ( ) [inline], [virtual]

Reimplemented in fcal::scanner::EndOfFileToken, fcal::scanner::ForwardSlashToken, fcal::scanner::DashToken, fcal::scanner::StarToken, fcal::scanner::PlusSignToken, fcal::scanner::LeftParenToken, fcal::scanner::LetToken, fcal::scanner::IfToken, fcal::scanner::VariableNameToken, fcal::scanner::CharConstToken, fcal::scanner::StringConstToken, fcal::scanner::FloatConstToken, fcal::scanner::IntConstToken, fcal::scanner::FalseKwdToken, fcal::scanner::TrueKwdToken, and fcal::scanner::NotOpToken.

7.13.2.2 ExtToken ∗ fcal::scanner::ExtToken::ExtendToken (parser::Parser ∗ *p*, Token ∗ *tokens*)

7.13.2.3 ExtToken ∗ fcal::scanner::ExtToken::ExtendTokenList (parser::Parser ∗ *p*, Token ∗ *tokens*)

7.13.2.4 virtual int fcal::scanner::ExtToken::lbp ( ) [inline], [virtual]

Reimplemented in fcal::scanner::RelationalOpToken, fcal::scanner::ForwardSlashToken, fcal::scanner::DashToken, fcal::scanner::StarToken, fcal::scanner::PlusSignToken, fcal::scanner::LeftParenToken, fcal::scanner::LetToken, and fcal::scanner::IfToken.

7.13.2.5 virtual parser::ParseResult fcal::scanner::ExtToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented in fcal::scanner::RelationalOpToken, fcal::scanner::ForwardSlashToken, fcal::scanner::DashToken, fcal::scanner::StarToken, and fcal::scanner::PlusSignToken.

7.13.2.6 std::string fcal::scanner::ExtToken::lexeme (void) const [inline]

7.13.2.7 ExtToken* fcal::scanner::ExtToken::next (void) const [inline]

7.13.2.8 virtual parser::ParseResult fcal::scanner::ExtToken::nud (void) [inline], [virtual]

Reimplemented in fcal::scanner::LeftParenToken, fcal::scanner::LetToken, fcal::scanner::IfToken, fcal::scanner::VariableNameToken, fcal::scanner::CharConstToken, fcal::scanner::StringConstToken, fcal::scanner::FloatConstToken, fcal::scanner::IntConstToken, fcal::scanner::FalseKwdToken, fcal::scanner::TrueKwdToken, and fcal::scanner::NotOpToken.

7.13.2.9 parser::Parser* fcal::scanner::ExtToken::parser (void) [inline], [protected]

7.13.2.10 scanner::TokenType fcal::scanner::ExtToken::terminal (void) const [inline]

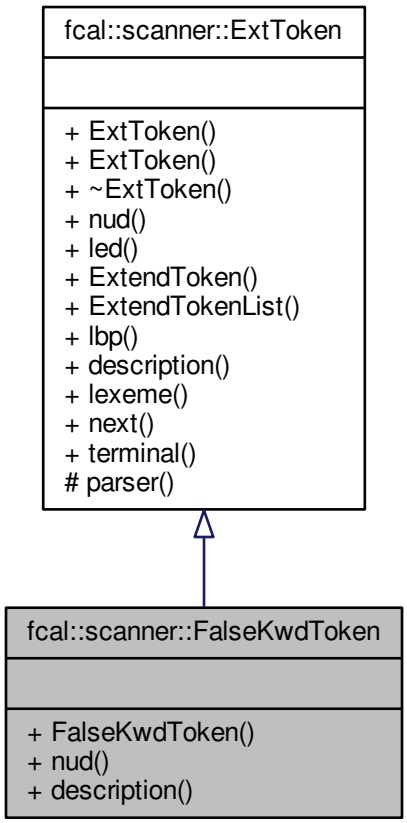
The documentation for this class was generated from the following files:

- include/ext_token.h
- src/ext_token.cc

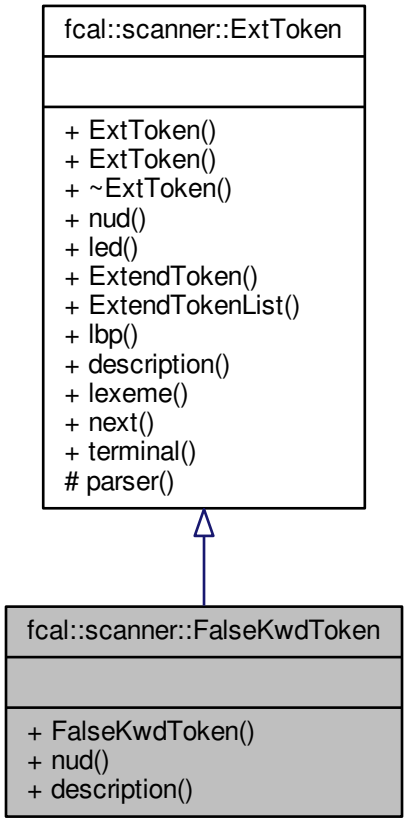
7.14 fcal::scanner::FalseKwdToken Class Reference

```
#include <ext_token.h>
```

Inheritance diagram for fcal::scanner::FalseKwdToken:



Collaboration diagram for fcal::scanner::FalseKwdToken:



Public Member Functions

- FalseKwdToken (parser::Parser *p, Token *t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.14.1 Constructor & Destructor Documentation

7.14.1.1 fcal::scanner::FalseKwdToken::FalseKwdToken (parser::Parser * p, Token * t) [inline]

7.14.2 Member Function Documentation

7.14.2.1 std::string fcal::scanner::FalseKwdToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.14.2.2 parser::ParseResult fcal::scanner::FalseKwdToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

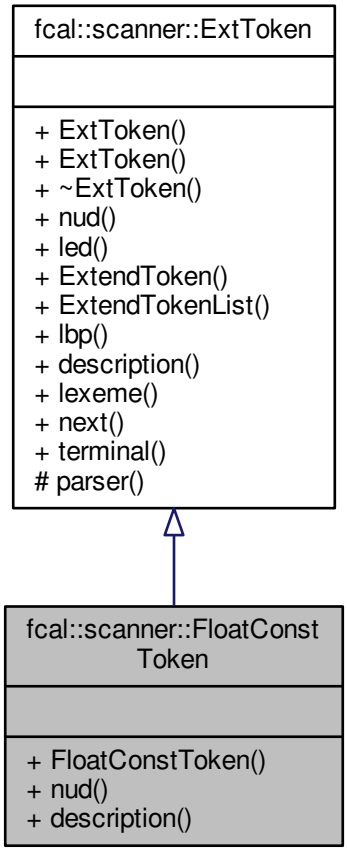
The documentation for this class was generated from the following file:

- include/ext_token.h

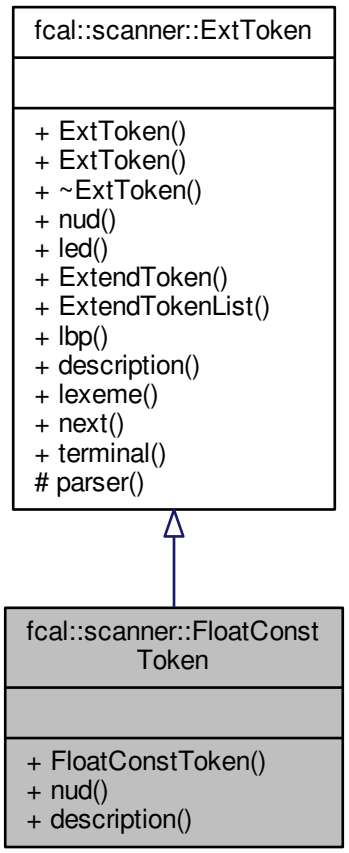
7.15 fcal::scanner::FloatConstToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::FloatConstToken:



Collaboration diagram for fcal::scanner::FloatConstToken:



Public Member Functions

- FloatConstToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.15.1 Constructor & Destructor Documentation

7.15.1.1 fcal::scanner::FloatConstToken::FloatConstToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.15.2 Member Function Documentation

7.15.2.1 std::string fcal::scanner::FloatConstToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.15.2.2 parser::ParseResult fcal::scanner::FloatConstToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

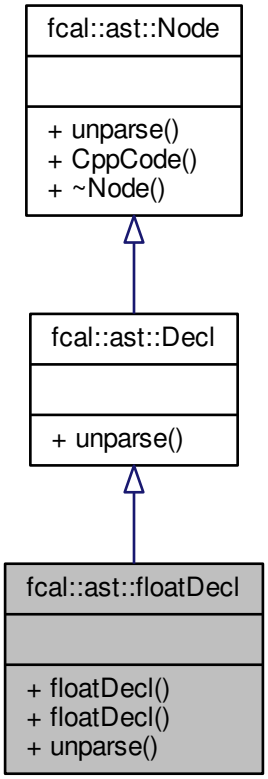
The documentation for this class was generated from the following file:

- include/ext_token.h

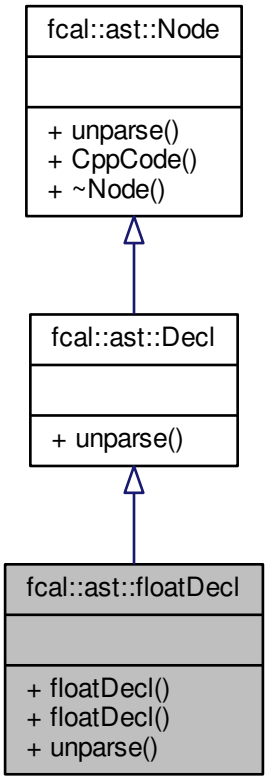
7.16 fcal::ast::floatDecl Class Reference

`#include <decl.h>`

Inheritance diagram for fcal::ast::floatDecl:



Collaboration diagram for fcal::ast::floatDecl:



Public Member Functions

- floatDecl ()
- floatDecl (std::string s1)
- std::string unparse (void)

7.16.1 Constructor & Destructor Documentation

7.16.1.1 fcal::ast::floatDecl::floatDecl ( )

7.16.1.2 fcal::ast::floatDecl::floatDecl (std::string *s1*) [inline],[explicit]

This constructor requires one parameters: string that is the var name

Parameters

s1	the string which is the var name

7.16.2 Member Function Documentation

7.16.2.1 std::string fcal::ast::floatDecl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

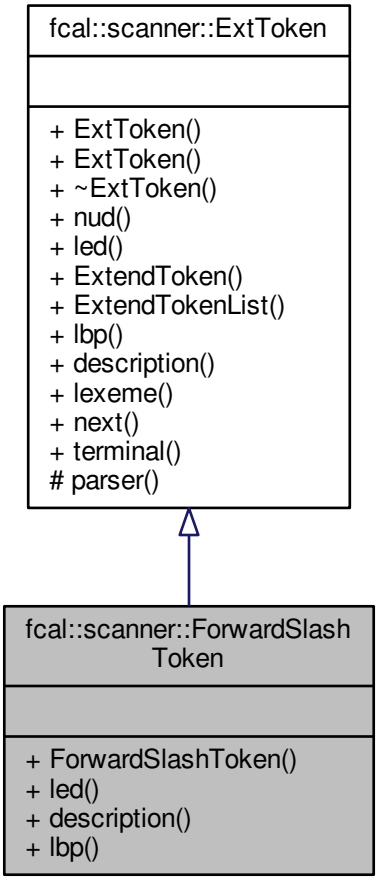
The documentation for this class was generated from the following file:

- include/decl.h

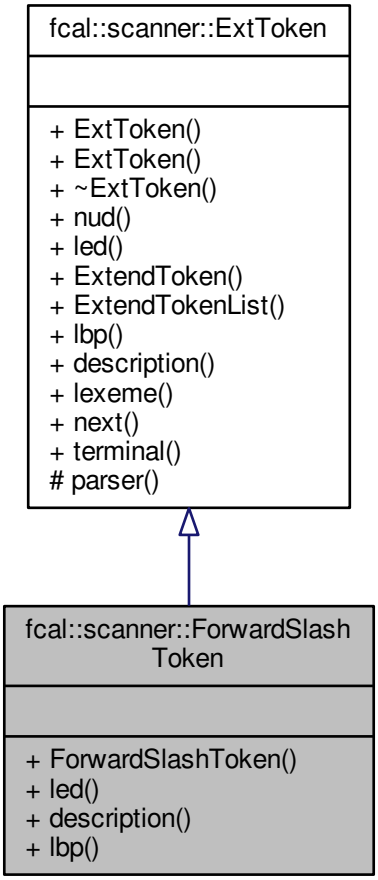
7.17 fcal::scanner::ForwardSlashToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::ForwardSlashToken:



Collaboration diagram for fcal::scanner::ForwardSlashToken:



Public Member Functions

- ForwardSlashToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult led (parser::ParseResult left)
- std::string description ()
- int lbp ()

Additional Inherited Members

7.17.1 Constructor & Destructor Documentation

7.17.1.1 fcal::scanner::ForwardSlashToken::ForwardSlashToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.17.2 Member Function Documentation

7.17.2.1 std::string fcal::scanner::ForwardSlashToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.17.2.2 int fcal::scanner::ForwardSlashToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.17.2.3 parser::ParseResult fcal::scanner::ForwardSlashToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

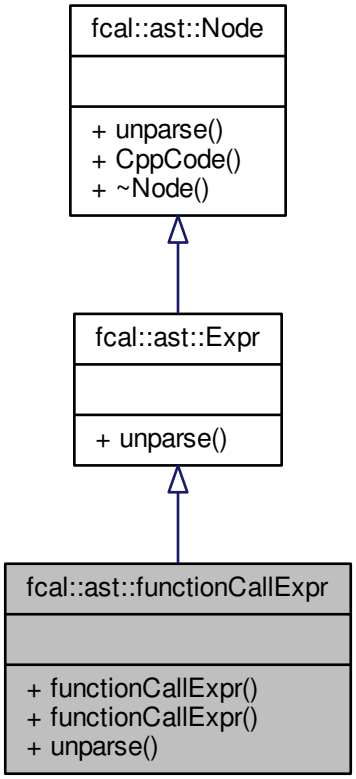
The documentation for this class was generated from the following file:

- include/ext_token.h

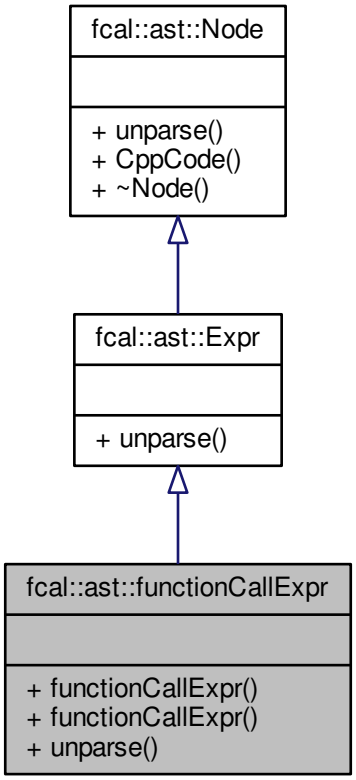
7.18 fcal::ast::functionCallExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::functionCallExpr:



Collaboration diagram for fcal::ast::functionCallExpr:



Public Member Functions

- functionCallExpr ()
- functionCallExpr (Expr ∗e1)
- std::string unparse (void)

7.18.1 Constructor & Destructor Documentation

7.18.1.1 fcal::ast::functionCallExpr::functionCallExpr ( )

7.18.1.2 fcal::ast::functionCallExpr::functionCallExpr (Expr ∗ *e1*) [inline], [explicit]

7.18.2 Member Function Documentation

7.18.2.1 std::string fcal::ast::functionCallExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

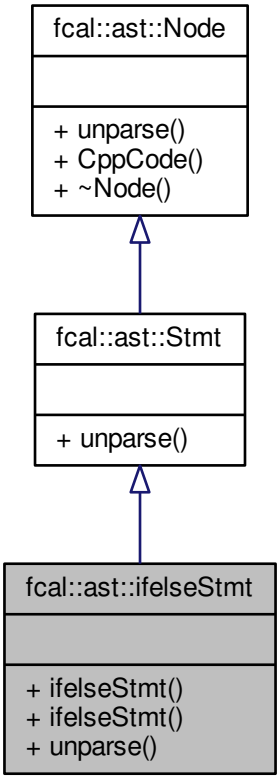
The documentation for this class was generated from the following file:

- include/expr.h

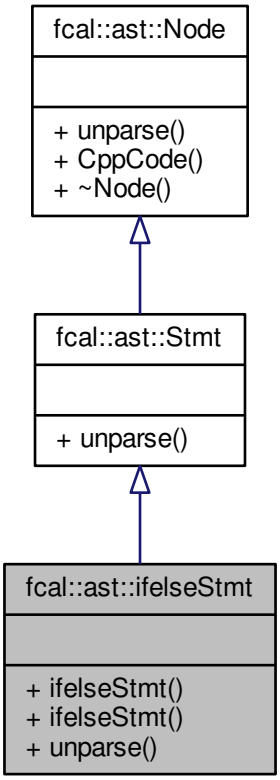
7.19 fcal::ast::ifelseStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::ifelseStmt:



Collaboration diagram for fcal::ast::ifelseStmt:



Public Member Functions

- ifelseStmt ()
- ifelseStmt (Stmt *s1, Stmt *s2, Expr *e1)
- std::string unparse (void)

7.19.1 Constructor & Destructor Documentation

7.19.1.1 fcal::ast::ifelseStmt::ifelseStmt ( )

7.19.1.2 fcal::ast::ifelseStmt::ifelseStmt (Stmt * *s1*, Stmt * *s2*, Expr * *e1*) [inline]

7.19.2 Member Function Documentation

7.19.2.1 std::string fcal::ast::ifelseStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

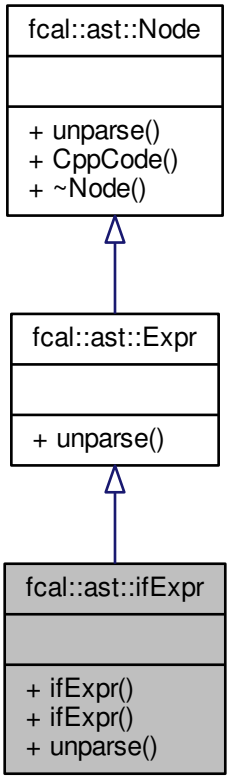
The documentation for this class was generated from the following file:

- include/stmt.h

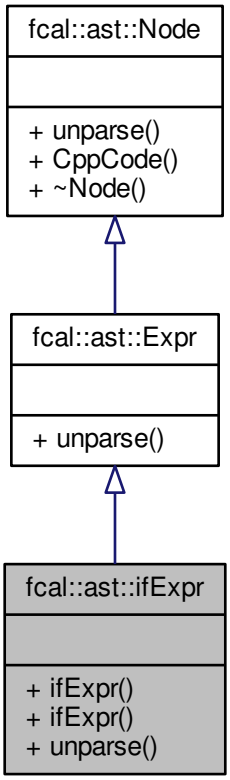
7.20 fcal::ast::ifExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::ifExpr:



Collaboration diagram for fcal::ast::ifExpr:



Public Member Functions

- ifExpr ()
- ifExpr (Expr ∗e1, Expr ∗e2, Expr ∗e3)
- std::string unparse (void)

7.20.1 Constructor & Destructor Documentation

7.20.1.1 fcal::ast::ifExpr::ifExpr ( )

7.20.1.2 fcal::ast::ifExpr::ifExpr (Expr ∗ *e1*, Expr ∗ *e2*, Expr ∗ *e3*) [inline]

7.20.2 Member Function Documentation

7.20.2.1 std::string fcal::ast::ifExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

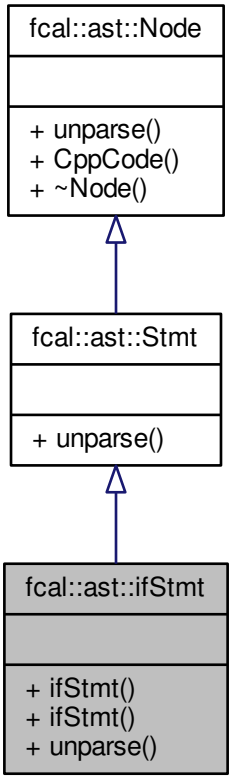
The documentation for this class was generated from the following file:

- include/expr.h

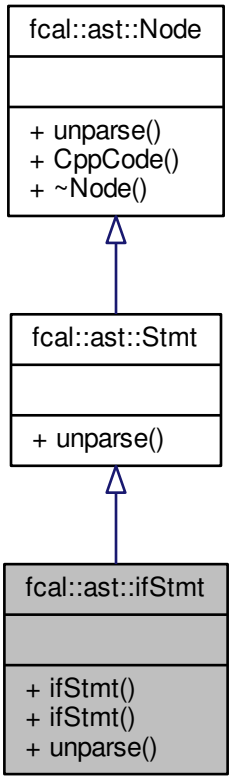
7.21 fcal::ast::ifStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::ifStmt:



Collaboration diagram for fcal::ast::ifStmt:



Public Member Functions

- ifStmt ()
- ifStmt (Stmt ∗s1, Expr ∗e1)
- std::string unparse (void)

7.21.1 Constructor & Destructor Documentation

7.21.1.1 fcal::ast::ifStmt::ifStmt ( )

7.21.1.2 fcal::ast::ifStmt::ifStmt (Stmt ∗ *s1*, Expr ∗ *e1*) [inline]

7.21.2 Member Function Documentation

7.21.2.1 std::string fcal::ast::ifStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

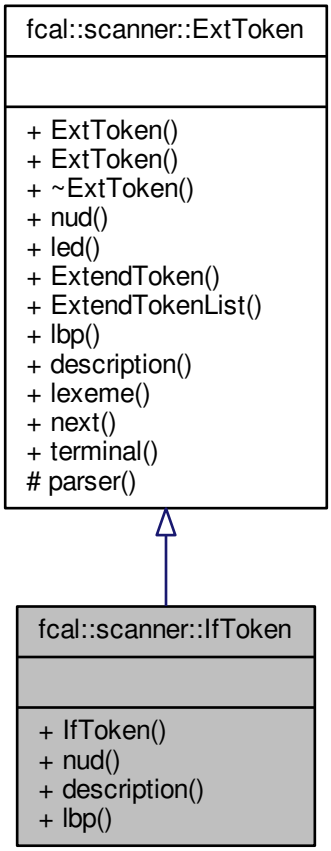
The documentation for this class was generated from the following file:

- include/stmt.h

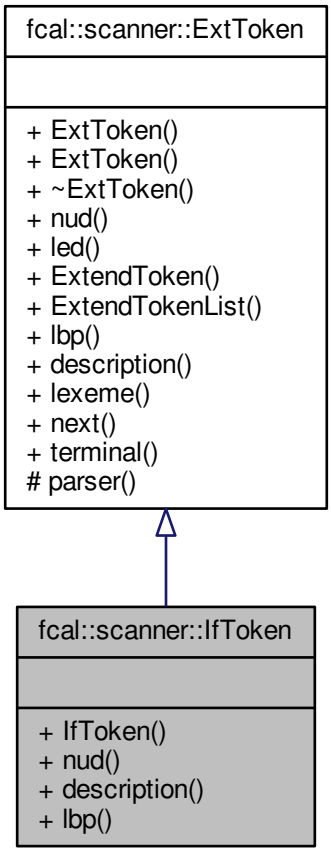
7.22 fcal::scanner::IfToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::IfToken:



Collaboration diagram for fcal::scanner::IfToken:



Public Member Functions

- IfToken (parser::Parser *p, Token *t)
- parser::ParseResult nud ()
- std::string description ()
- int lbp ()

Additional Inherited Members

7.22.1 Constructor & Destructor Documentation

7.22.1.1 fcal::scanner::IfToken::IfToken (parser::Parser * *p*, Token * *t*) [inline]

7.22.2 Member Function Documentation

7.22.2.1 std::string fcal::scanner::IfToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.22.2.2 int fcal::scanner::IfToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.22.2.3 parser::ParseResult fcal::scanner::IfToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

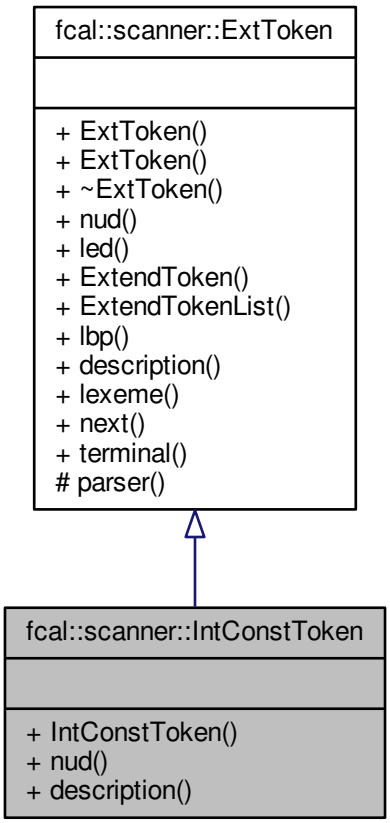
The documentation for this class was generated from the following file:

- include/ext_token.h

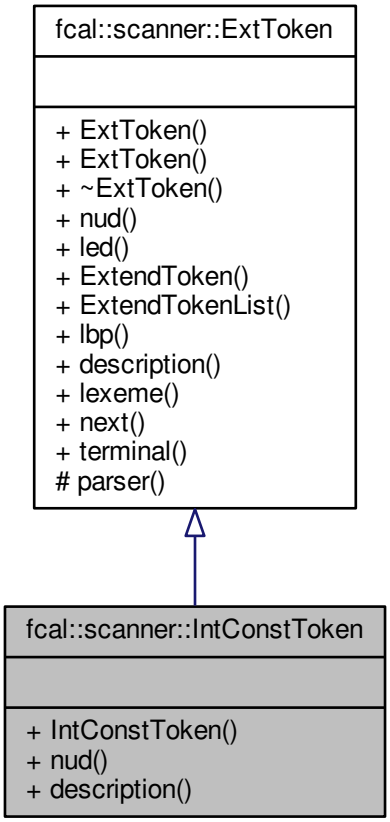
7.23 fcal::scanner::IntConstToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::IntConstToken:



Collaboration diagram for fcal::scanner::IntConstToken:



Public Member Functions

- IntConstToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.23.1 Constructor & Destructor Documentation

7.23.1.1 fcal::scanner::IntConstToken::IntConstToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.23.2 Member Function Documentation

7.23.2.1 std::string fcal::scanner::IntConstToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.23.2.2 parser::ParseResult fcal::scanner::IntConstToken::nud (void) [inline],[virtual]

Reimplemented from fcal::scanner::ExtToken.

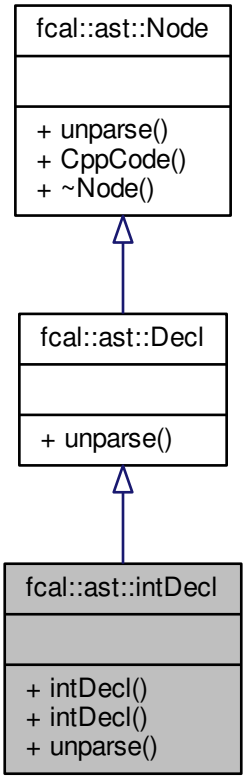
The documentation for this class was generated from the following file:

- include/ext_token.h

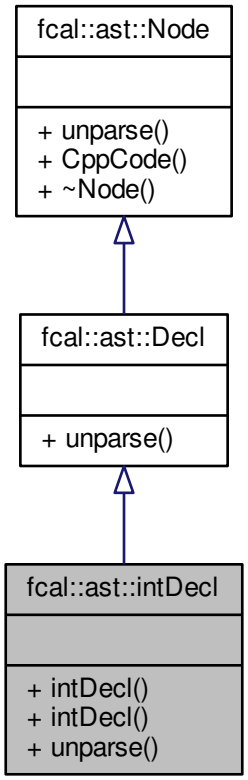
7.24 fcal::ast::intDecl Class Reference

`#include <decl.h>`

Inheritance diagram for fcal::ast::intDecl:



Collaboration diagram for fcal::ast::intDecl:



Public Member Functions

- intDecl ()
- intDecl (std::string s1)
- std::string unparse (void)

7.24.1 Constructor & Destructor Documentation

7.24.1.1 fcal::ast::intDecl::intDecl ( )

7.24.1.2 fcal::ast::intDecl::intDecl (std::string *s1*) [inline], [explicit]

This constructor requires one parameters: string that is the var name

Parameters

s1	the string which is the var name

7.24.2 Member Function Documentation

7.24.2.1 std::string fcal::ast::intDecl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

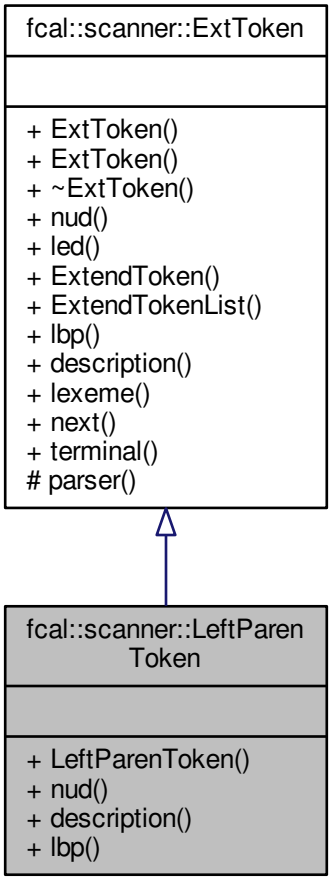
The documentation for this class was generated from the following file:

- include/decl.h

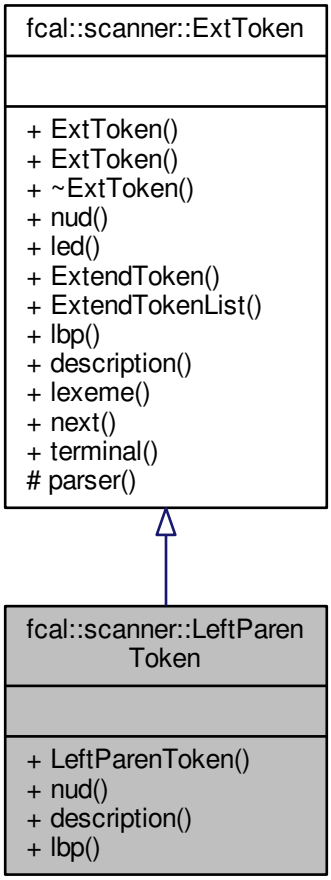
7.25 fcal::scanner::LeftParenToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::LeftParenToken:



Collaboration diagram for fcal::scanner::LeftParenToken:



Public Member Functions

- LeftParenToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()
- int lbp ()

Additional Inherited Members

7.25.1 Constructor & Destructor Documentation

7.25.1.1 fcal::scanner::LeftParenToken::LeftParenToken (parser::Parser ∗ *p,* Token ∗ *t*) [inline]

7.25.2 Member Function Documentation

7.25.2.1 std::string fcal::scanner::LeftParenToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.25.2.2 int fcal::scanner::LeftParenToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.25.2.3 parser::ParseResult fcal::scanner::LeftParenToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

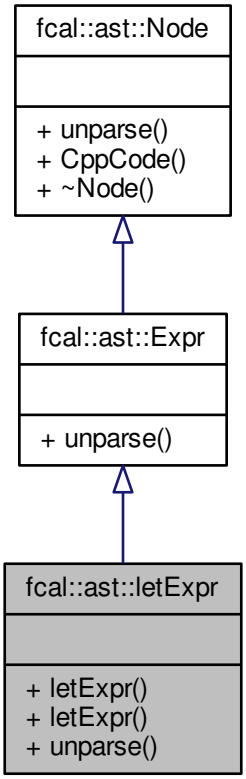
The documentation for this class was generated from the following file:

- include/ext_token.h

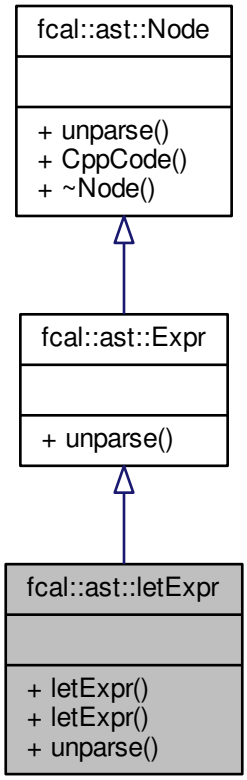
7.26 fcal::ast::letExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::letExpr:



Collaboration diagram for fcal::ast::letExpr:



Public Member Functions

- letExpr ()
- letExpr (Stmts ∗s1, Expr ∗e1)
- std::string unparse (void)

7.26.1 Constructor & Destructor Documentation

7.26.1.1 fcal::ast::letExpr::letExpr ( )

7.26.1.2 fcal::ast::letExpr::letExpr (Stmts ∗ *s1*, Expr ∗ *e1*) [inline]

7.26.2 Member Function Documentation

7.26.2.1 std::string fcal::ast::letExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

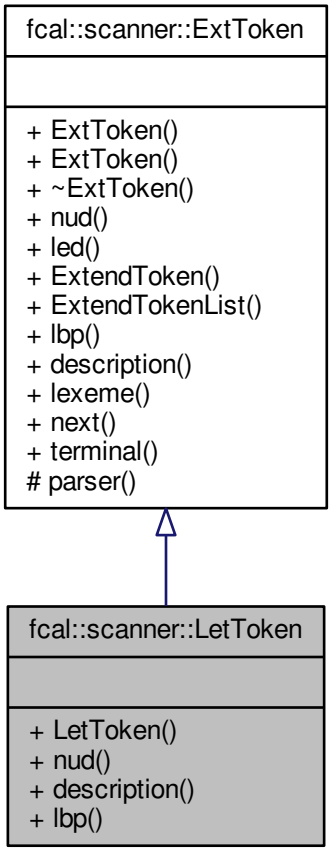
The documentation for this class was generated from the following file:

- include/expr.h

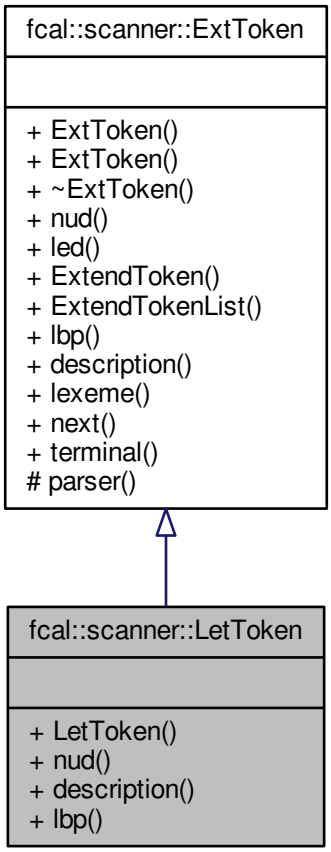
7.27 fcal::scanner::LetToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::LetToken:



Collaboration diagram for fcal::scanner::LetToken:



Public Member Functions

- LetToken (parser::Parser *p, Token *t)
- parser::ParseResult nud ()
- std::string description ()
- int lbp ()

Additional Inherited Members

7.27.1 Constructor & Destructor Documentation

7.27.1.1 fcal::scanner::LetToken::LetToken (parser::Parser * p, Token * t) [inline]

7.27.2 Member Function Documentation

7.27.2.1 std::string fcal::scanner::LetToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.27.2.2 int fcal::scanner::LetToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.27.2.3 parser::ParseResult fcal::scanner::LetToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

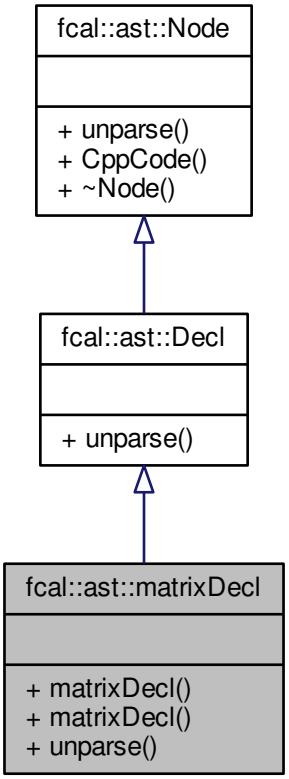
The documentation for this class was generated from the following file:

- include/ext_token.h

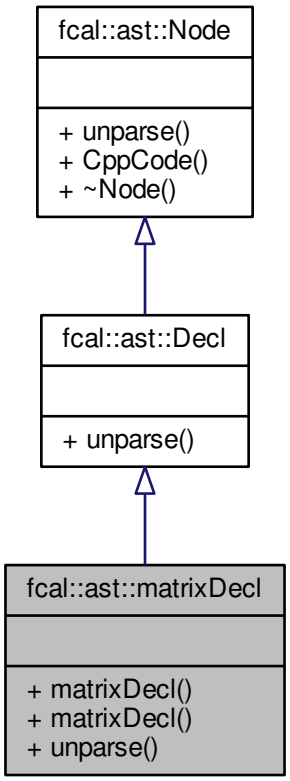
7.28 fcal::ast::matrixDecl Class Reference

`#include <decl.h>`

Inheritance diagram for fcal::ast::matrixDecl:



Collaboration diagram for fcal::ast::matrixDecl:



Public Member Functions

- matrixDecl ()
- matrixDecl (std::string var1, Expr ∗e1, Expr ∗e2, std::string var2, std::string var3, Expr ∗e3)
- std::string unparse (void)

7.28.1 Detailed Description

matrixDecl handles production 17) Decl ::= 'matrix' varName '[' Expr ':' Expr ']' varName ':' varName '=' Expr ';'

7.28.2 Constructor & Destructor Documentation

7.28.2.1 fcal::ast::matrixDecl::matrixDecl ( )

7.28.2.2 fcal::ast::matrixDecl::matrixDecl (std::string *var1,* Expr ∗ *e1,* Expr ∗ *e2,* std::string *var2,* std::string *var3,* Expr ∗ *e3*) [inline]

This constructor requires six parameters: 3 string 3 pointers of Expr

Parameters

var1	a string which require for a matrix Decl
e1	a Expr pointer
e2	a Expr pointer
var2	a string
var3	a string
e3	a Expr pointer

7.28.3 Member Function Documentation

7.28.3.1 std::string fcal::ast::matrixDecl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

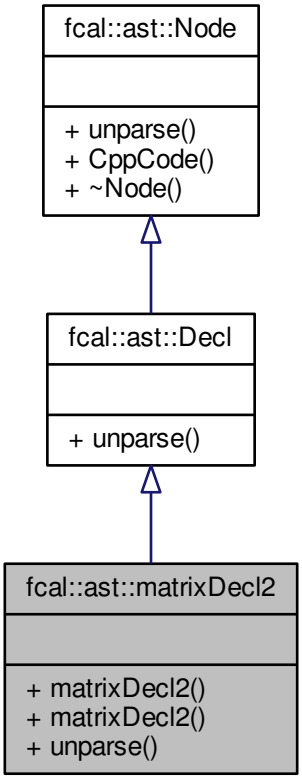
The documentation for this class was generated from the following file:

- include/decl.h

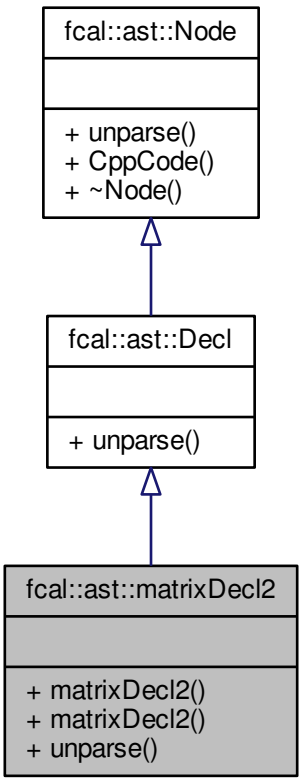
7.29 fcal::ast::matrixDecl2 Class Reference

```
#include <decl.h>
```

Inheritance diagram for fcal::ast::matrixDecl2:



Collaboration diagram for fcal::ast::matrixDecl2:



Public Member Functions

- matrixDecl2 ()
- matrixDecl2 (std::string s1, Expr ∗e2)
- std::string unparse (void)

7.29.1 Detailed Description

matrixDecl2 handles production 18) Decl ::= 'matrix' varName '=' Expr ';'

7.29.2 Constructor & Destructor Documentation

7.29.2.1 fcal::ast::matrixDecl2::matrixDecl2 ( )

7.29.2.2 fcal::ast::matrixDecl2::matrixDecl2 (std::string *s1*, Expr ∗ *e2*) [inline]

This constructor requires two parameters: a string and a Expr pointer

Parameters

s1	is a string
e2	a pointer pointing to a Expr

7.29.3 Member Function Documentation

7.29.3.1 std::string fcal::ast::matrixDecl2::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

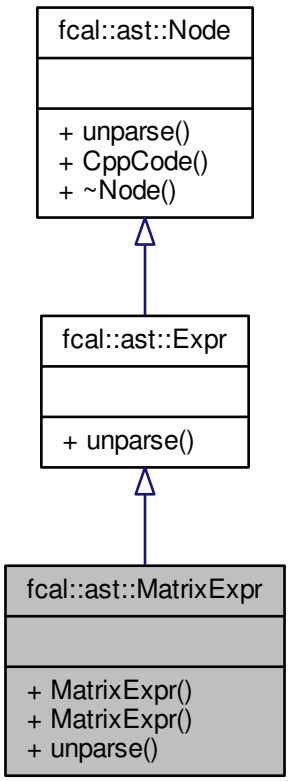
The documentation for this class was generated from the following file:

- include/decl.h

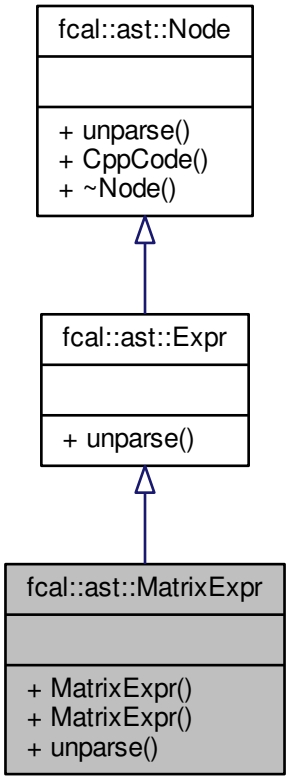
7.30 fcal::ast::MatrixExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::MatrixExpr:



Collaboration diagram for fcal::ast::MatrixExpr:



Public Member Functions

- MatrixExpr ()
- MatrixExpr (std::string s1, Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.30.1 Constructor & Destructor Documentation

7.30.1.1 fcal::ast::MatrixExpr::MatrixExpr ( )

7.30.1.2 fcal::ast::MatrixExpr::MatrixExpr (std::string *s1*, Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.30.2 Member Function Documentation

7.30.2.1 std::string fcal::ast::MatrixExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

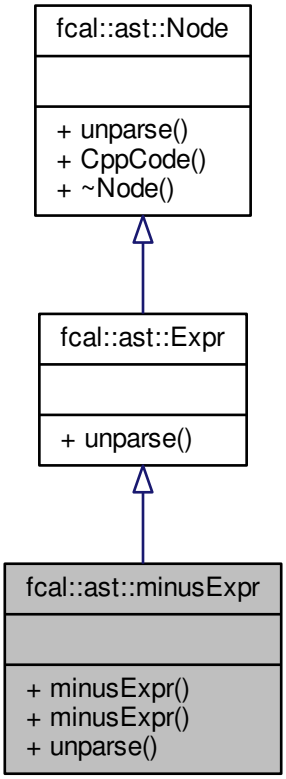
The documentation for this class was generated from the following file:

- include/expr.h

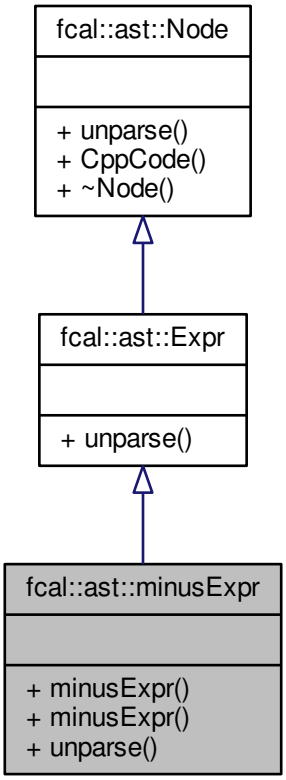
7.31 fcal::ast::minusExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::minusExpr:



Collaboration diagram for fcal::ast::minusExpr:



Public Member Functions

- minusExpr ()
- minusExpr (Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.31.1 Constructor & Destructor Documentation

7.31.1.1 fcal::ast::minusExpr::minusExpr ( )

7.31.1.2 fcal::ast::minusExpr::minusExpr (Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.31.2 Member Function Documentation

7.31.2.1 std::string fcal::ast::minusExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

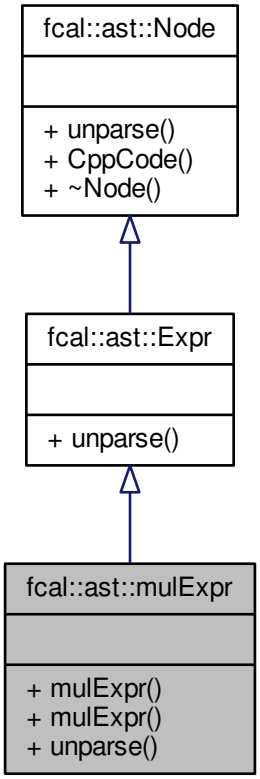
The documentation for this class was generated from the following file:

- include/expr.h

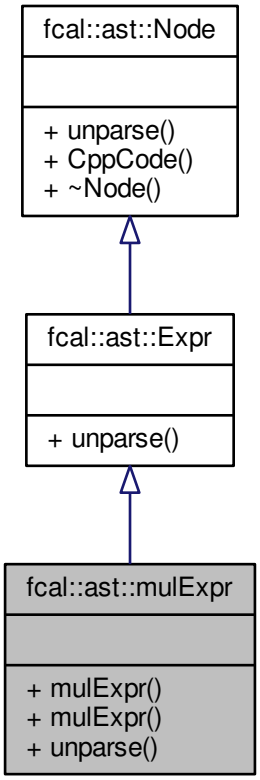
7.32 fcal::ast::mulExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::mulExpr:



Collaboration diagram for fcal::ast::mulExpr:



Public Member Functions

- mulExpr ()
- mulExpr (Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.32.1 Constructor & Destructor Documentation

7.32.1.1 fcal::ast::mulExpr::mulExpr ( )

7.32.1.2 fcal::ast::mulExpr::mulExpr (Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.32.2 Member Function Documentation

7.32.2.1 std::string fcal::ast::mulExpr::unparse (void) [inline], [virtual]

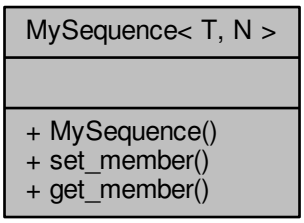
Reimplemented from fcal::ast::Expr.

The documentation for this class was generated from the following file:

- include/expr.h

7.33 MySequence< T, N > Class Template Reference

Collaboration diagram for MySequence< T, N >:



Public Member Functions

- MySequence (void)
- void set_member (int x, T value)
- T get_member (int x)

7.33.1 Constructor & Destructor Documentation

7.33.1.1 template<class T , int N> MySequence< T, N >::MySequence (void) [inline]

7.33.2 Member Function Documentation

7.33.2.1 template<class T , int N> T MySequence< T, N >::get_member (int *x*) [inline]

7.33.2.2 template<class T , int N> void MySequence< T, N >::set_member (int *x*, T *value*) [inline]

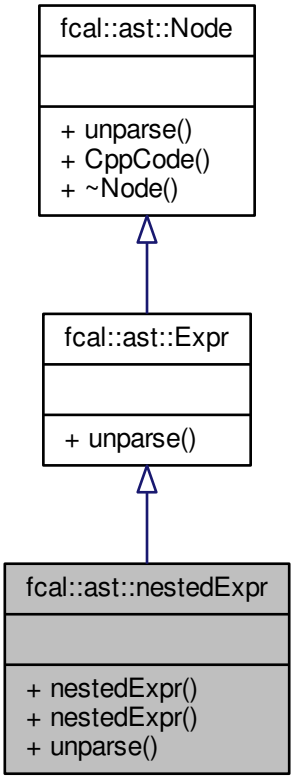
The documentation for this class was generated from the following file:

- src/templates.cc

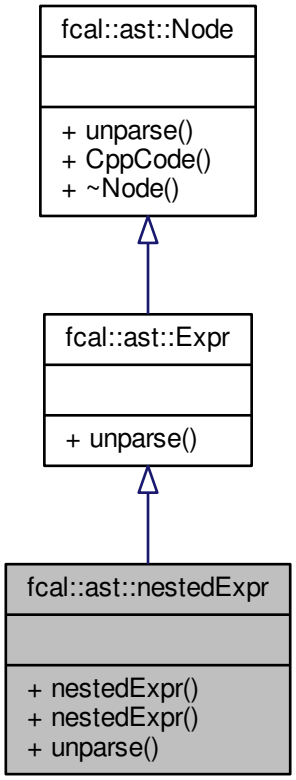
7.34 fcal::ast::nestedExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::nestedExpr:



Collaboration diagram for fcal::ast::nestedExpr:



Public Member Functions

- nestedExpr ()
- nestedExpr (std::string s1, Expr ∗e1)
- std::string unparse (void)

7.34.1 Constructor & Destructor Documentation

7.34.1.1 fcal::ast::nestedExpr::nestedExpr ( )

7.34.1.2 fcal::ast::nestedExpr::nestedExpr (std::string *s1*, Expr ∗ *e1*) [inline]

7.34.2 Member Function Documentation

7.34.2.1 std::string fcal::ast::nestedExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

The documentation for this class was generated from the following file:

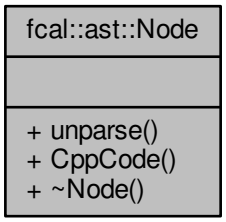
- include/expr.h

7.35 fcal::ast::Node Class Reference

`#include <ast.h>`

Inheritance diagram for fcal::ast::Node:

Collaboration diagram for fcal::ast::Node:



Public Member Functions

- virtual std::string unparse (void)
- virtual std::string CppCode (void)
- virtual ~Node (void)

7.35.1 Constructor & Destructor Documentation

7.35.1.1 virtual fcal::ast::Node::~Node (void) [inline], [virtual]

7.35.2 Member Function Documentation

7.35.2.1 virtual std::string fcal::ast::Node::CppCode (void) [inline], [virtual]

7.35.2.2 virtual std::string fcal::ast::Node::unparse (void) [inline], [virtual]

Reimplemented in fcal::ast::notExpr, fcal::ast::ifExpr, fcal::ast::letExpr, fcal::ast::functionCallExpr, fcal::ast::nestedExpr, fcal::ast::MatrixExpr, fcal::ast::booleanExpr, fcal::ast::booleanDecl, fcal::ast::constExpr, fcal::ast::semiStmt, fcal::ast::stringDecl, fcal::ast::varExpr, fcal::ast::whileStmt, fcal::ast::orExpr, fcal::ast::floatDecl, fcal::ast::repeatStmt, fcal::ast::andExpr, fcal::ast::intDecl, fcal::ast::printStmt, fcal::ast::relationshipExpr, fcal::ast::matrixDecl2, fcal::ast::variableStmt, fcal::ast::mulExpr, fcal::ast::Stmt, fcal::ast::ifelseStmt, fcal::ast::Stmts, fcal::ast::divExpr, fcal::ast::matrixDecl, fcal::ast::ifStmt, fcal::ast::Expr, fcal::ast::minusExpr, fcal::ast::seqStmts, fcal::ast::stmtsStmt, fcal::ast::Program, fcal::ast::plusExpr, fcal::ast::program, fcal::ast::declStmt, fcal::ast::Decl, and fcal::ast::emptyStmts.

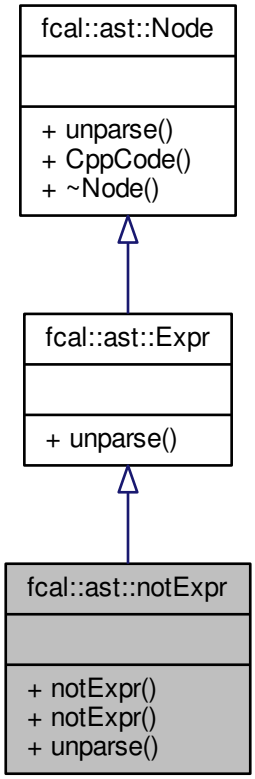
The documentation for this class was generated from the following file:

- include/ast.h

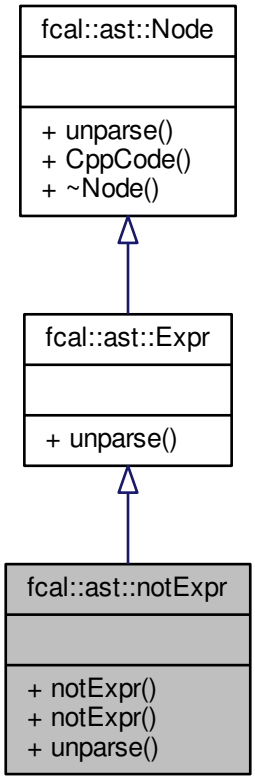
7.36 fcal::ast::notExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::notExpr:



Collaboration diagram for fcal::ast::notExpr:



Public Member Functions

- notExpr ()
- notExpr (Expr ∗e1)
- std::string unparse (void)

7.36.1 Constructor & Destructor Documentation

7.36.1.1 fcal::ast::notExpr::notExpr ( )

7.36.1.2 fcal::ast::notExpr::notExpr (Expr ∗ *e1*) [inline], [explicit]

7.36.2 Member Function Documentation

7.36.2.1 std::string fcal::ast::notExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

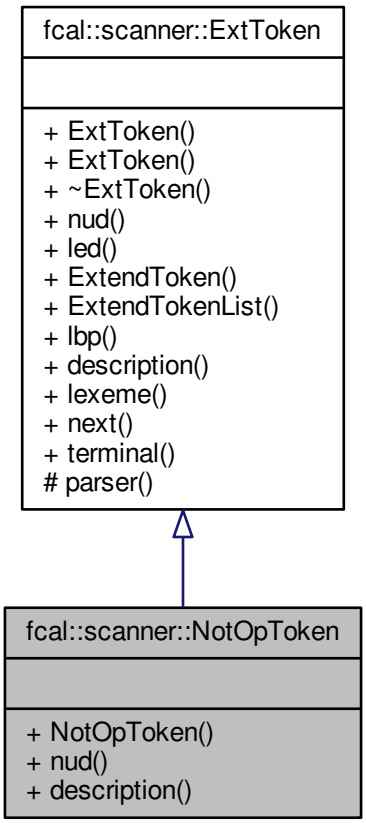
The documentation for this class was generated from the following file:

- include/expr.h

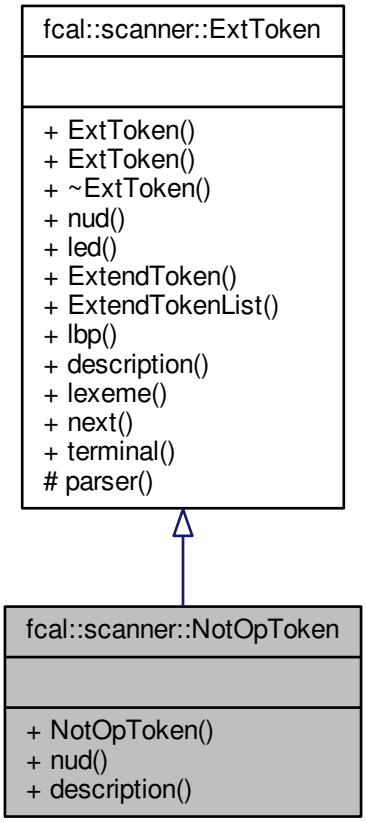
7.37 fcal::scanner::NotOpToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::NotOpToken:



Collaboration diagram for fcal::scanner::NotOpToken:



Public Member Functions

- NotOpToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.37.1 Constructor & Destructor Documentation

7.37.1.1 fcal::scanner::NotOpToken::NotOpToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.37.2 Member Function Documentation

7.37.2.1 std::string fcal::scanner::NotOpToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.37.2.2 parser::ParseResult fcal::scanner::NotOpToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

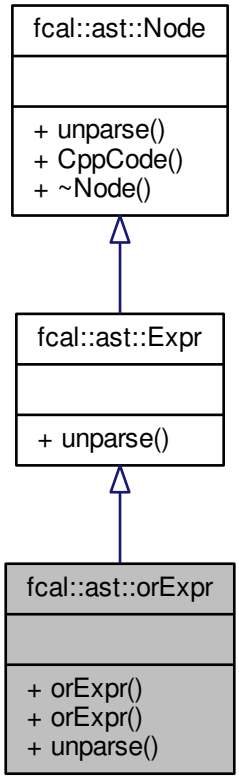
The documentation for this class was generated from the following file:

- include/ext_token.h

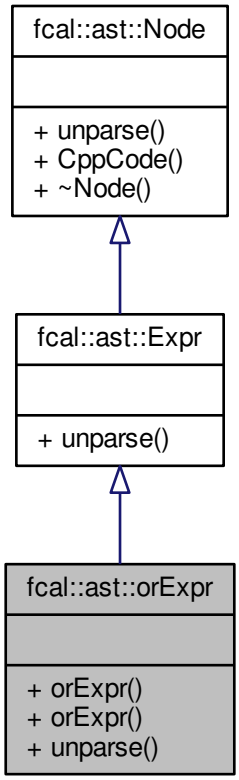
7.38 fcal::ast::orExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::orExpr:



Collaboration diagram for fcal::ast::orExpr:



Public Member Functions

- orExpr ()
- orExpr (Expr *e1, Expr *e2)
- std::string unparse (void)

7.38.1 Constructor & Destructor Documentation

7.38.1.1 fcal::ast::orExpr::orExpr ( )

7.38.1.2 fcal::ast::orExpr::orExpr (Expr * *e1*, Expr * *e2*) [inline]

7.38.2 Member Function Documentation

7.38.2.1 std::string fcal::ast::orExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

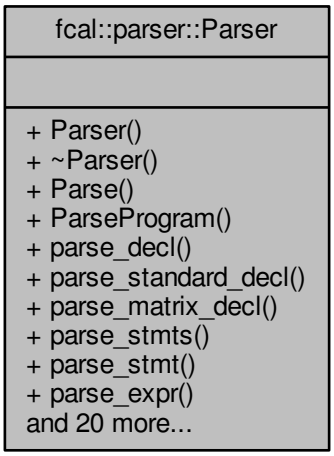
The documentation for this class was generated from the following file:

- include/expr.h

7.39 fcal::parser::Parser Class Reference

`#include <parser.h>`

Collaboration diagram for fcal::parser::Parser:



Public Member Functions

- Parser (void)
- ~Parser (void)
- ParseResult Parse (const char *text)
- ParseResult ParseProgram ()
- ParseResult parse_decl ()
- ParseResult parse_standard_decl ()
- ParseResult parse_matrix_decl ()
- ParseResult parse_stmts ()
- ParseResult parse_stmt ()
- ParseResult parse_expr (int rbp)
- ParseResult parse_true_kwd ()
- ParseResult parse_false_kwd ()
- ParseResult parse_int_const ()
- ParseResult parse_float_const ()
- ParseResult parse_string_const ()
- ParseResult parse_char_const ()
- ParseResult parse_variable_name ()
- ParseResult parse_nested_expr ()
- ParseResult parse_not_expr ()
- ParseResult parse_let_expr ()
- ParseResult parse_if_expr ()
- ParseResult parse_addition (ParseResult left)
- ParseResult parse_multiplication (ParseResult left)
- ParseResult parse_subtraction (ParseResult left)

- ParseResult parse_division (ParseResult left)
- ParseResult parse_relational_expr (ParseResult left)
- void match (const scanner::TokenType &tt)
- bool attempt_match (const scanner::TokenType &tt)
- bool next_is (const scanner::TokenType &tt)
- void next_token (void)

7.39.1 Constructor & Destructor Documentation

7.39.1.1 fcal::parser::Parser::Parser (void) [inline]

7.39.1.2 fcal::parser::Parser::~Parser (void)

7.39.2 Member Function Documentation

7.39.2.1 bool fcal::parser::Parser::attempt_match (const scanner::TokenType & *tt*)

7.39.2.2 void fcal::parser::Parser::match (const scanner::TokenType & *tt*)

7.39.2.3 bool fcal::parser::Parser::next_is (const scanner::TokenType & *tt*)

7.39.2.4 void fcal::parser::Parser::next_token (void)

7.39.2.5 ParseResult fcal::parser::Parser::Parse (const char * *text*)

7.39.2.6 ParseResult fcal::parser::Parser::parse_addition (ParseResult *left*)

7.39.2.7 ParseResult fcal::parser::Parser::parse_char_const ( )

7.39.2.8 ParseResult fcal::parser::Parser::parse_decl ( )

7.39.2.9 ParseResult fcal::parser::Parser::parse_division (ParseResult *left*)

7.39.2.10 ParseResult fcal::parser::Parser::parse_expr (int *rbp*)

7.39.2.11 ParseResult fcal::parser::Parser::parse_false_kwd ( )

7.39.2.12 ParseResult fcal::parser::Parser::parse_float_const ( )

7.39.2.13 ParseResult fcal::parser::Parser::parse_if_expr ( )

7.39.2.14 ParseResult fcal::parser::Parser::parse_int_const ( )

7.39.2.15 ParseResult fcal::parser::Parser::parse_let_expr ( )

7.39.2.16 ParseResult fcal::parser::Parser::parse_matrix_decl ( )

7.39.2.17 ParseResult fcal::parser::Parser::parse_multiplication (ParseResult *left*)

7.39.2.18 ParseResult fcal::parser::Parser::parse_nested_expr ( )

7.39.2.19 ParseResult fcal::parser::Parser::parse_not_expr ( )

7.39.2.20 ParseResult fcal::parser::Parser::parse_relational_expr (ParseResult *left*)

7.39.2.21 ParseResult fcal::parser::Parser::parse_standard_decl ( )

7.39.2.22 ParseResult fcal::parser::Parser::parse_stmt ( )

7.39.2.23 ParseResult fcal::parser::Parser::parse_stmts ( )

7.39.2.24 ParseResult fcal::parser::Parser::parse_string_const ( )

7.39.2.25 ParseResult fcal::parser::Parser::parse_subtraction (ParseResult *left*)

7.39.2.26 ParseResult fcal::parser::Parser::parse_true_kwd ( )

7.39.2.27 ParseResult fcal::parser::Parser::parse_variable_name ( )

7.39.2.28 ParseResult fcal::parser::Parser::ParseProgram ( )

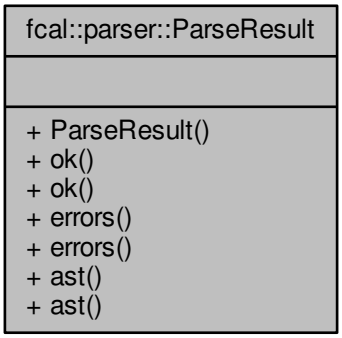
The documentation for this class was generated from the following files:

- include/parser.h
- src/parser.cc

7.40 fcal::parser::ParseResult Class Reference

`#include <parse_result.h>`

Collaboration diagram for fcal::parser::ParseResult:



Public Member Functions

- ParseResult (void)
- bool ok (void) const
- void ok (bool result_in)
- std::string errors (void) const
- void errors (const std::string str_in)
- ast::Node * ast (void)
- void ast (ast::Node *Node_ptr)

7.40.1 Constructor & Destructor Documentation

7.40.1.1 fcal::parser::ParseResult::ParseResult (void) [inline]

7.40.2 Member Function Documentation

7.40.2.1 ast::Node* fcal::parser::ParseResult::ast (void) [inline]

7.40.2.2 void fcal::parser::ParseResult::ast (ast::Node * *Node_ptr*) [inline]

7.40.2.3 std::string fcal::parser::ParseResult::errors (void) const [inline]

7.40.2.4 void fcal::parser::ParseResult::errors (const std::string *str_in*) [inline]

7.40.2.5 bool fcal::parser::ParseResult::ok (void) const [inline]

7.40.2.6 void fcal::parser::ParseResult::ok (bool *result_in*) [inline]

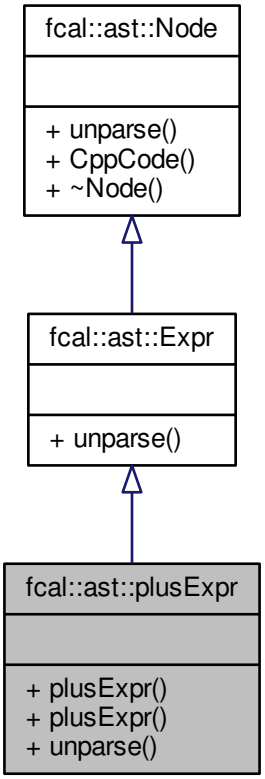
The documentation for this class was generated from the following file:

- include/parse_result.h

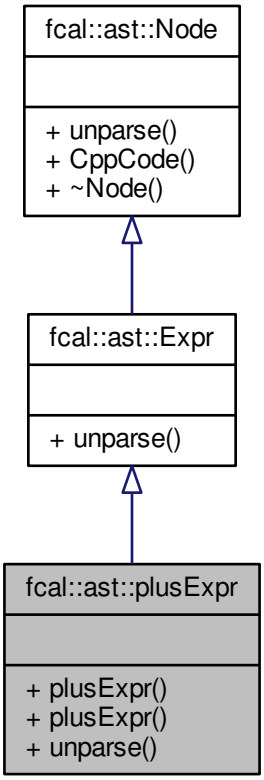
7.41 fcal::ast::plusExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::plusExpr:



Collaboration diagram for fcal::ast::plusExpr:



Public Member Functions

- plusExpr ()
- plusExpr (Expr ∗e1, Expr ∗e2)
- std::string unparse (void)

7.41.1 Constructor & Destructor Documentation

7.41.1.1 fcal::ast::plusExpr::plusExpr ( )

7.41.1.2 fcal::ast::plusExpr::plusExpr (Expr ∗ *e1*, Expr ∗ *e2*) [inline]

7.41.2 Member Function Documentation

7.41.2.1 std::string fcal::ast::plusExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

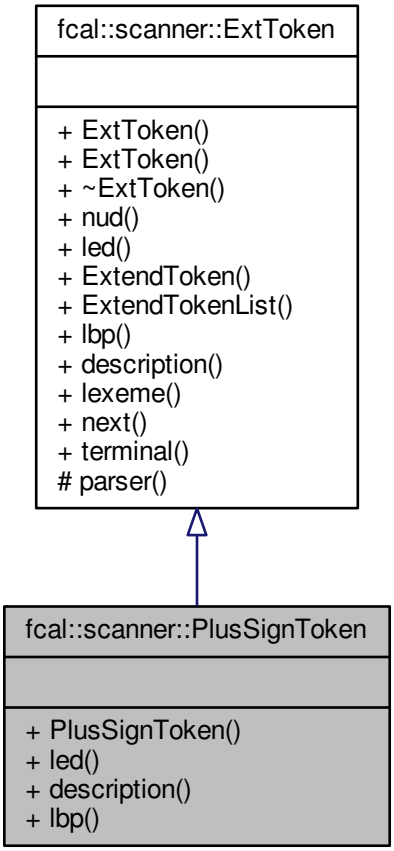
The documentation for this class was generated from the following file:

- include/expr.h

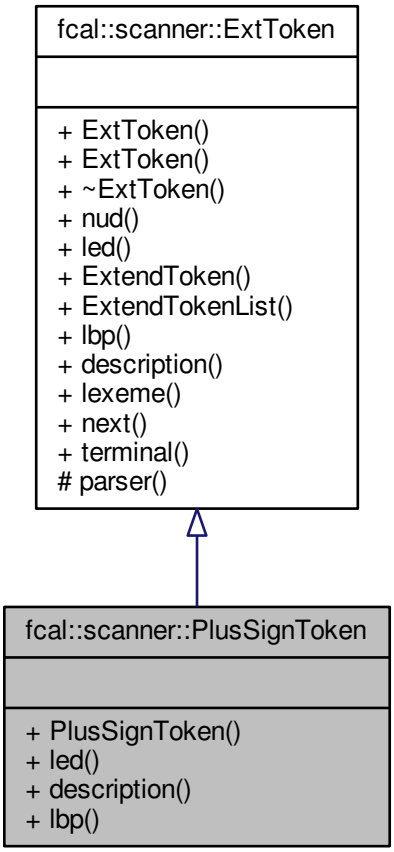
7.42 fcal::scanner::PlusSignToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::PlusSignToken:



Collaboration diagram for fcal::scanner::PlusSignToken:



Public Member Functions

- PlusSignToken (parser::Parser *p, Token *t)
- parser::ParseResult led (parser::ParseResult left)
- std::string description ()
- int lbp ()

Additional Inherited Members

7.42.1 Constructor & Destructor Documentation

7.42.1.1 fcal::scanner::PlusSignToken::PlusSignToken (parser::Parser * *p*, Token * *t*) [inline]

7.42.2 Member Function Documentation

7.42.2.1 std::string fcal::scanner::PlusSignToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.42.2.2 int fcal::scanner::PlusSignToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.42.2.3 parser::ParseResult fcal::scanner::PlusSignToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

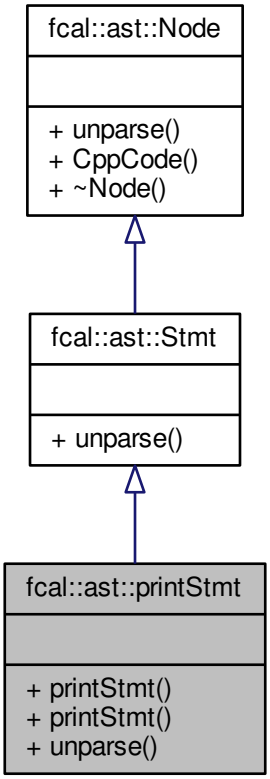
The documentation for this class was generated from the following file:

- include/ext_token.h

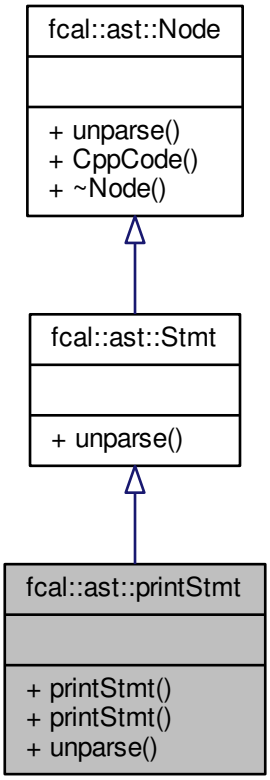
7.43 fcal::ast::printStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::printStmt:



Collaboration diagram for fcal::ast::printStmt:



Public Member Functions

- printStmt ()
- printStmt (Expr *e1)
- std::string unparse (void)

7.43.1 Constructor & Destructor Documentation

7.43.1.1 fcal::ast::printStmt::printStmt ( )

7.43.1.2 fcal::ast::printStmt::printStmt (Expr * *e1*) [inline], [explicit]

7.43.2 Member Function Documentation

7.43.2.1 std::string fcal::ast::printStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

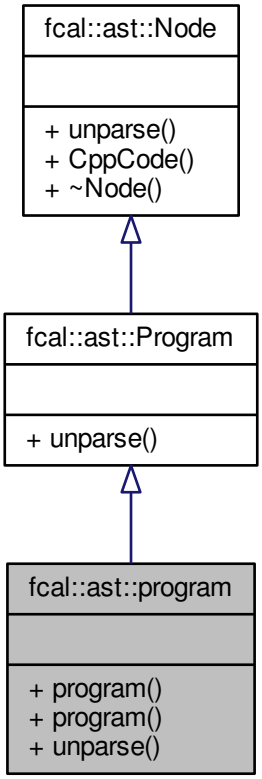
The documentation for this class was generated from the following file:

- include/stmt.h

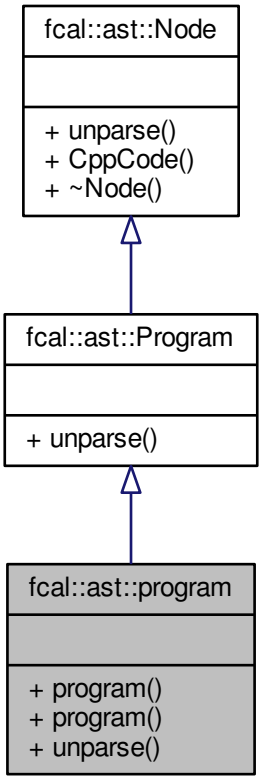
7.44 fcal::ast::program Class Reference

`#include <program.h>`

Inheritance diagram for fcal::ast::program:



Collaboration diagram for fcal::ast::program:



Public Member Functions

- program ()
- program (std::string lex, Stmts ∗s)
- std::string unparse ()

7.44.1 Constructor & Destructor Documentation

7.44.1.1 fcal::ast::program::program ( )

7.44.1.2 fcal::ast::program::program (std::string *lex,* Stmts ∗ *s*) [inline]

7.44.2 Member Function Documentation

7.44.2.1 std::string fcal::ast::program::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Program.

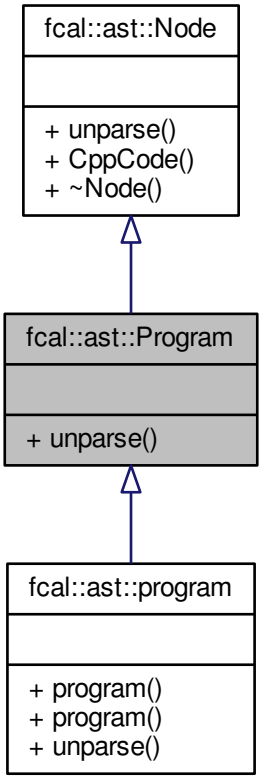
The documentation for this class was generated from the following file:

- include/program.h

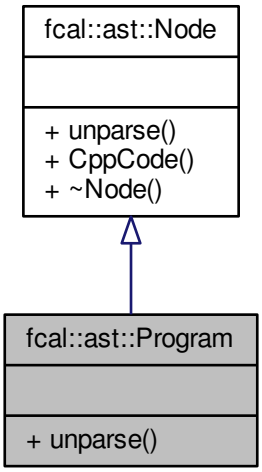
7.45 fcal::ast::Program Class Reference

```
#include <declarations.h>
```

Inheritance diagram for fcal::ast::Program:



Collaboration diagram for fcal::ast::Program:



Public Member Functions

- virtual std::string unparse (void)

7.45.1 Detailed Description

Program is the base abstract class for the start of a program in our fcal dsl language.

7.45.2 Member Function Documentation

7.45.2.1 virtual std::string fcal::ast::Program::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Node.

Reimplemented in fcal::ast::program.

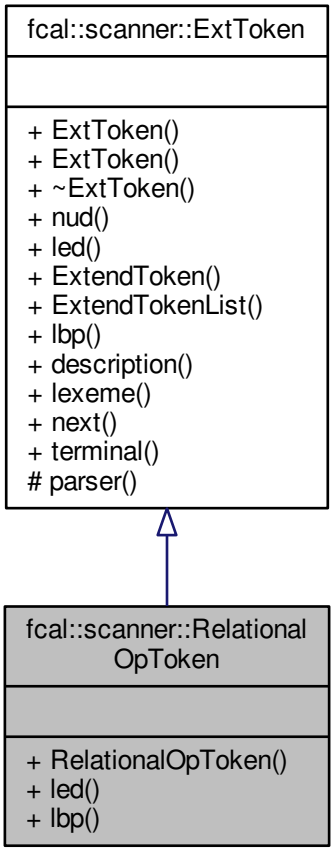
The documentation for this class was generated from the following file:

- include/declarations.h

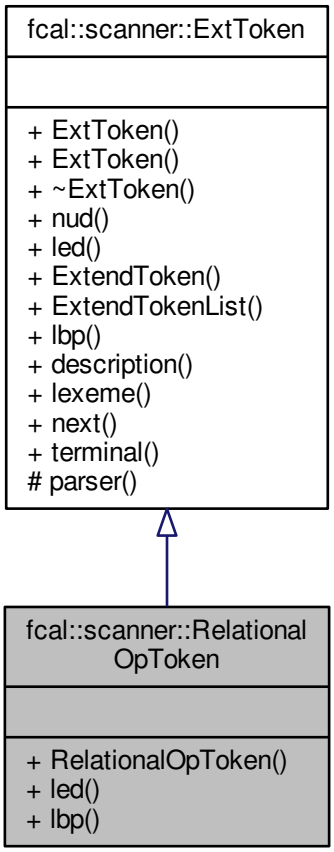
7.46 fcal::scanner::RelationalOpToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::RelationalOpToken:



Collaboration diagram for fcal::scanner::RelationalOpToken:



Public Member Functions

- RelationalOpToken (parser::Parser ∗p, Token ∗t, std::string d)
- parser::ParseResult led (parser::ParseResult left)
- int lbp ()

Additional Inherited Members

7.46.1 Constructor & Destructor Documentation

7.46.1.1 fcal::scanner::RelationalOpToken::RelationalOpToken (parser::Parser ∗ *p*, Token ∗ *t*, std::string *d*) [inline]

7.46.2 Member Function Documentation

7.46.2.1 int fcal::scanner::RelationalOpToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.46.2.2 parser::ParseResult fcal::scanner::RelationalOpToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

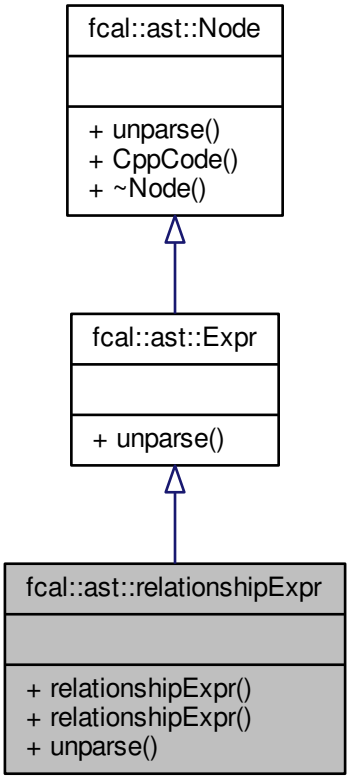
The documentation for this class was generated from the following file:

- include/ext_token.h

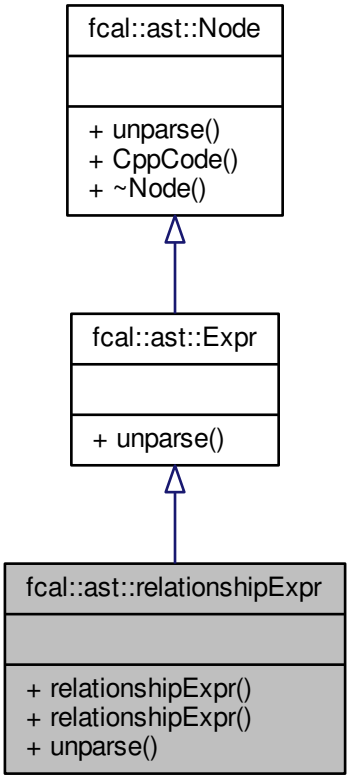
7.47 fcal::ast::relationshipExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::relationshipExpr:



Collaboration diagram for fcal::ast::relationshipExpr:



Public Member Functions

- relationshipExpr ()
- relationshipExpr (Expr ∗e1, std::string s, Expr ∗e2)
- std::string unparse (void)

7.47.1 Detailed Description

relationshipExpr class handles the following productions: Expr ::= Expr equalEquals Expr == Expr ::= Expr less↩ ThanEquals Expr <= Expr ::= Expr greaterThanEquals Expr >= Expr ::= Expr notEquals Expr != Expr ::= Expr leftAngle Expr < Expr ::= Expr rightAngle Expr >

7.47.2 Constructor & Destructor Documentation

7.47.2.1 fcal::ast::relationshipExpr::relationshipExpr ( )

7.47.2.2 fcal::ast::relationshipExpr::relationshipExpr (Expr ∗ *e1*, std::string *s*, Expr ∗ *e2*) [inline]

7.47.3 Member Function Documentation

7.47.3.1 std::string fcal::ast::relationshipExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

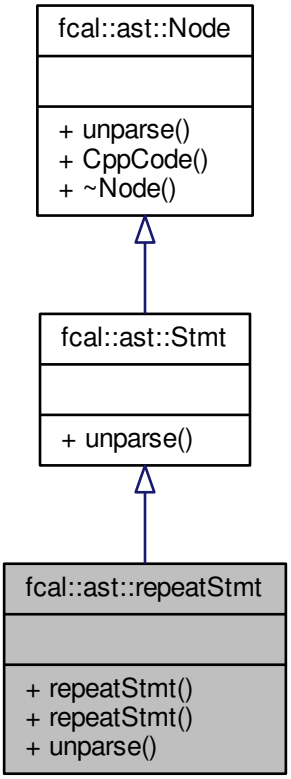
The documentation for this class was generated from the following file:

- include/expr.h

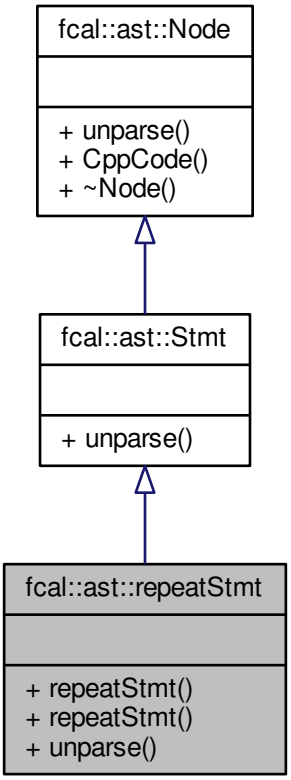
7.48 fcal::ast::repeatStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::repeatStmt:



Collaboration diagram for fcal::ast::repeatStmt:



Public Member Functions

- repeatStmt ()
- repeatStmt (std::string lex, Expr ∗e1, Expr ∗e2, Stmt ∗s1)
- std::string unparse (void)

7.48.1 Constructor & Destructor Documentation

7.48.1.1 fcal::ast::repeatStmt::repeatStmt ( )

7.48.1.2 fcal::ast::repeatStmt::repeatStmt (std::string *lex,* Expr ∗ *e1,* Expr ∗ *e2,* Stmt ∗ *s1*) [inline]

7.48.2 Member Function Documentation

7.48.2.1 std::string fcal::ast::repeatStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

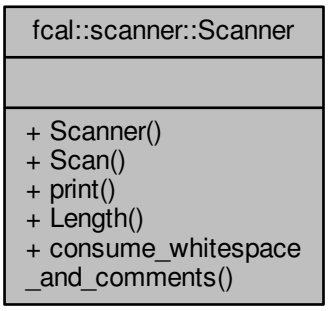
The documentation for this class was generated from the following file:

- include/stmt.h

7.49 fcal::scanner::Scanner Class Reference

`#include <scanner.h>`

Collaboration diagram for fcal::scanner::Scanner:



Public Member Functions

- Scanner ()
- Token ∗ Scan (const char ∗text)
- void print (Token ∗)
- int Length ()
- int consume_whitespace_and_comments (regex_t ∗white_space, regex_t ∗line_comment, regex_t ∗block↩ _comment, const char ∗text)

7.49.1 Constructor & Destructor Documentation

7.49.1.1 fcal::scanner::Scanner::Scanner ( )

7.49.2 Member Function Documentation

7.49.2.1 int fcal::scanner::Scanner::consume_whitespace_and_comments (regex_t ∗ *white_space,* regex_t ∗ *line_comment,* regex_t ∗ *block_comment,* const char ∗ *text*)

7.49.2.2 int fcal::scanner::Scanner::Length ( ) [inline]

7.49.2.3 void fcal::scanner::Scanner::print (Token ∗)

7.49.2.4 Token ∗ fcal::scanner::Scanner::Scan (const char ∗ *text*)

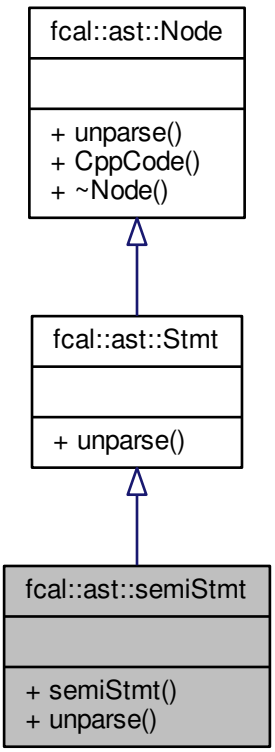
The documentation for this class was generated from the following files:

- include/scanner.h
- src/scanner.cc

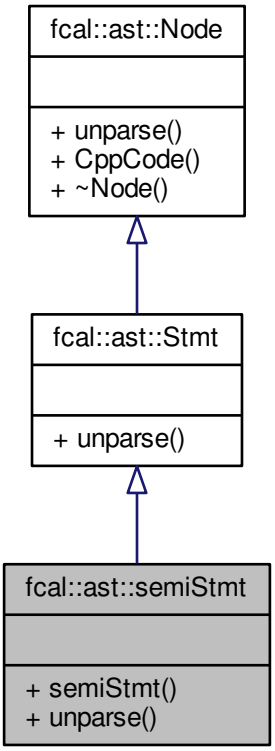
7.50 fcal::ast::semiStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::semiStmt:



Collaboration diagram for fcal::ast::semiStmt:



Public Member Functions

- semiStmt ()
- std::string unparse (void)

7.50.1 Constructor & Destructor Documentation

7.50.1.1 fcal::ast::semiStmt::semiStmt ( ) [inline]

7.50.2 Member Function Documentation

7.50.2.1 std::string fcal::ast::semiStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

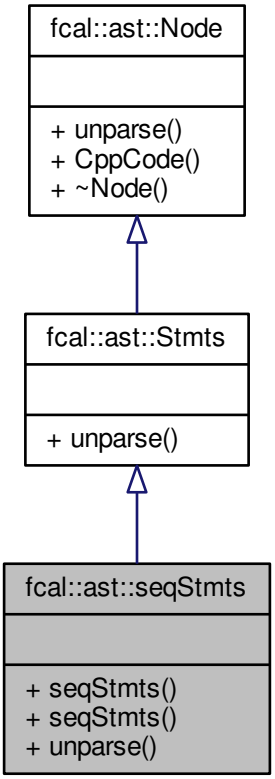
The documentation for this class was generated from the following file:

- include/stmt.h

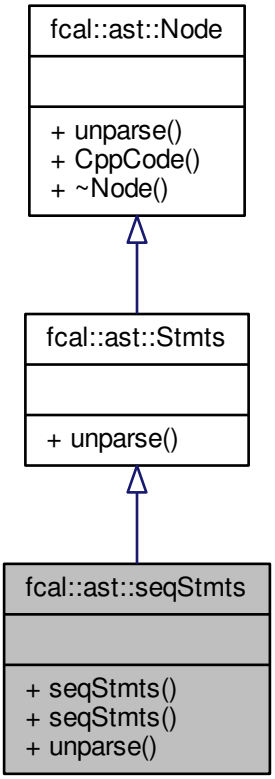
7.51 fcal::ast::seqStmts Class Reference

`#include <stmts.h>`

Inheritance diagram for fcal::ast::seqStmts:



Collaboration diagram for fcal::ast::seqStmts:



Public Member Functions

- seqStmts ()
- seqStmts (Stmt *s1, Stmts *s2)
- std::string unparse (void)

7.51.1 Detailed Description

This class seqStmts is the subclass of the abstract class Stmts

7.51.2 Constructor & Destructor Documentation

7.51.2.1 fcal::ast::seqStmts::seqStmts ( )

7.51.2.2 fcal::ast::seqStmts::seqStmts (Stmt * *s1*, Stmts * *s2*) [inline]

This constructor requires two parameters: pointer Stmt and pointer Stmts

Parameters

s1	the pointer poiting to a Stmt class
s2	the pointer poiting to a Stmts class

7.51.3 Member Function Documentation

7.51.3.1 std::string fcal::ast::seqStmts::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmts.

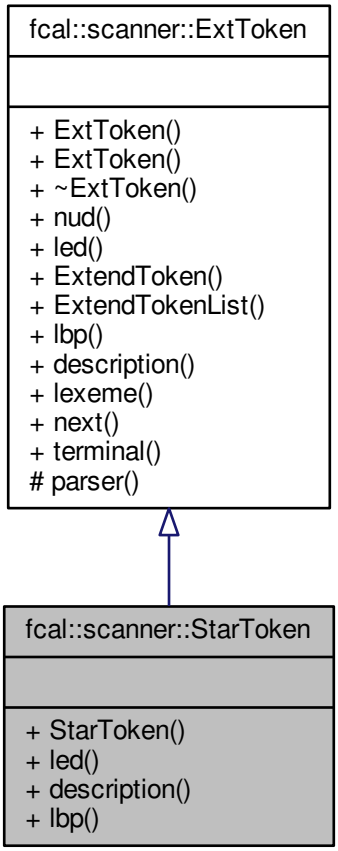
The documentation for this class was generated from the following file:

- include/stmts.h

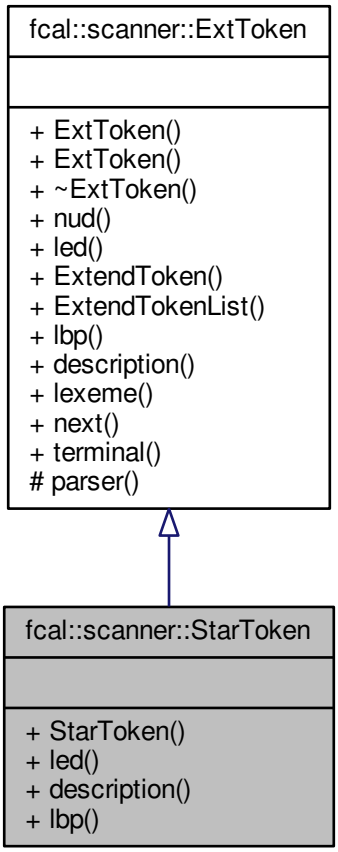
7.52 fcal::scanner::StarToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::StarToken:



Collaboration diagram for fcal::scanner::StarToken:



Public Member Functions

- StarToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult led (parser::ParseResult left)
- std::string description ()
- int lbp ()

Additional Inherited Members

7.52.1 Constructor & Destructor Documentation

7.52.1.1 fcal::scanner::StarToken::StarToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.52.2 Member Function Documentation

7.52.2.1 std::string fcal::scanner::StarToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.52.2.2 int fcal::scanner::StarToken::lbp ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.52.2.3 parser::ParseResult fcal::scanner::StarToken::led (parser::ParseResult *left*) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

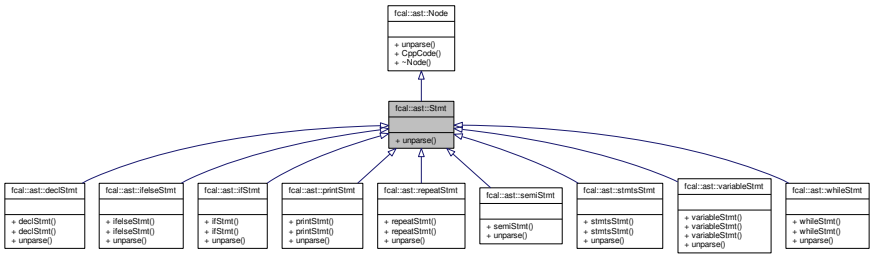
The documentation for this class was generated from the following file:

- include/ext_token.h

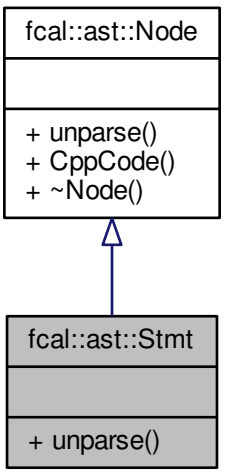
7.53 fcal::ast::Stmt Class Reference

`#include <declarations.h>`

Inheritance diagram for fcal::ast::Stmt:



Collaboration diagram for fcal::ast::Stmt:



Public Member Functions

- virtual std::string unparse (void)

7.53.1 Detailed Description

Stmt is the base abstract class for a statement in our fcal dsl language.

7.53.2 Member Function Documentation

7.53.2.1 virtual std::string fcal::ast::Stmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Node.

Reimplemented in fcal::ast::semiStmt, fcal::ast::whileStmt, fcal::ast::repeatStmt, fcal::ast::printStmt, fcal::ast::variableStmt, fcal::ast::ifelseStmt, fcal::ast::ifStmt, fcal::ast::stmtsStmt, and fcal::ast::declStmt.

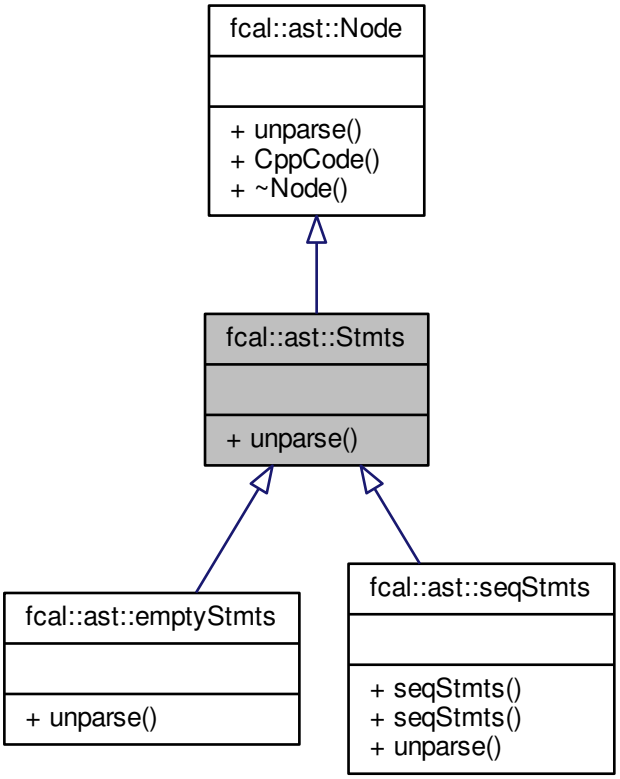
The documentation for this class was generated from the following file:

- include/declarations.h

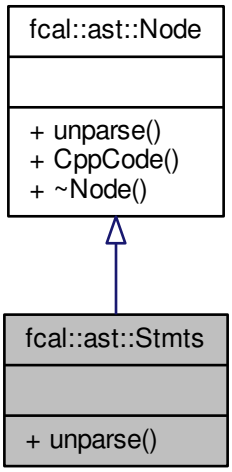
7.54 fcal::ast::Stmts Class Reference

`#include <declarations.h>`

Inheritance diagram for fcal::ast::Stmts:



Collaboration diagram for fcal::ast::Stmts:



Public Member Functions

- virtual std::string unparse (void)

7.54.1 Detailed Description

Stmts is the base abstract class for statements in our fcal dsl language.

7.54.2 Member Function Documentation

7.54.2.1 virtual std::string fcal::ast::Stmts::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Node.

Reimplemented in fcal::ast::seqStmts, and fcal::ast::emptyStmts.

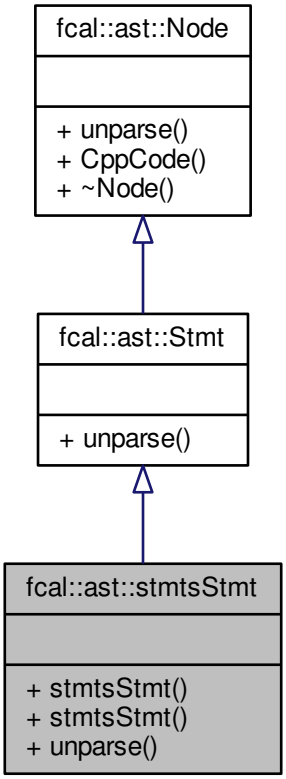
The documentation for this class was generated from the following file:

- include/declarations.h

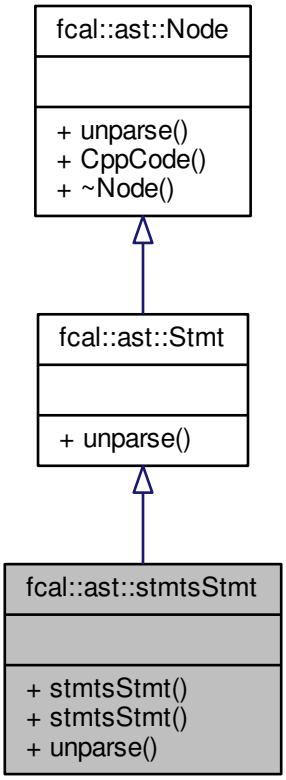
7.55 fcal::ast::stmtsStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::stmtsStmt:



Collaboration diagram for fcal::ast::stmtsStmt:



Public Member Functions

- stmtsStmt ()
- stmtsStmt (Stmts ∗s1)
- std::string unparse (void)

7.55.1 Constructor & Destructor Documentation

7.55.1.1 fcal::ast::stmtsStmt::stmtsStmt ( )

7.55.1.2 fcal::ast::stmtsStmt::stmtsStmt (Stmts ∗ *s1*) [inline], [explicit]

7.55.2 Member Function Documentation

7.55.2.1 std::string fcal::ast::stmtsStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

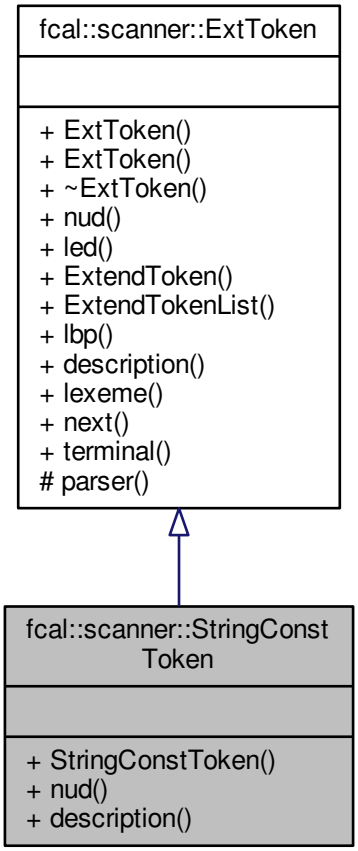
The documentation for this class was generated from the following file:

- include/stmt.h

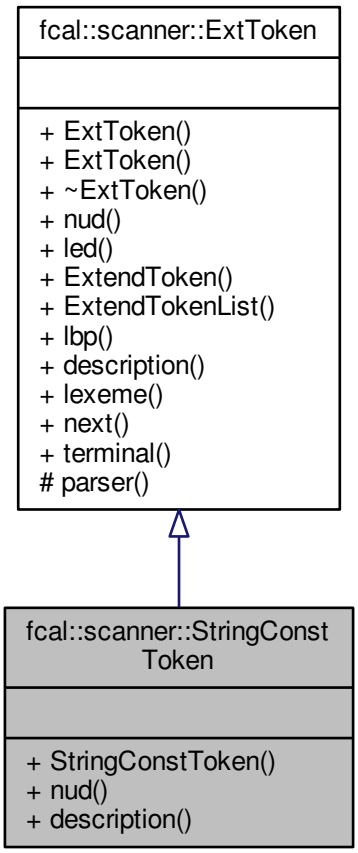
7.56 fcal::scanner::StringConstToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::StringConstToken:



Collaboration diagram for fcal::scanner::StringConstToken:



Public Member Functions

- StringConstToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.56.1 Constructor & Destructor Documentation

7.56.1.1 fcal::scanner::StringConstToken::StringConstToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.56.2 Member Function Documentation

7.56.2.1 std::string fcal::scanner::StringConstToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.56.2.2 parser::ParseResult fcal::scanner::StringConstToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

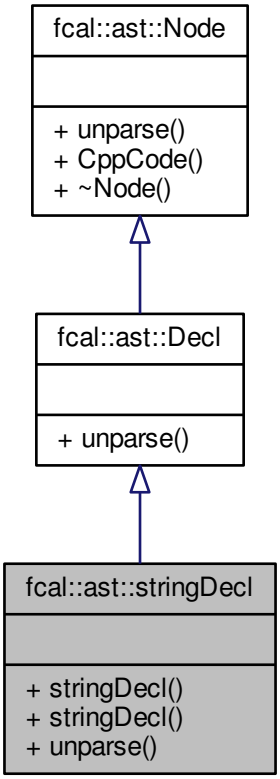
The documentation for this class was generated from the following file:

- include/ext_token.h

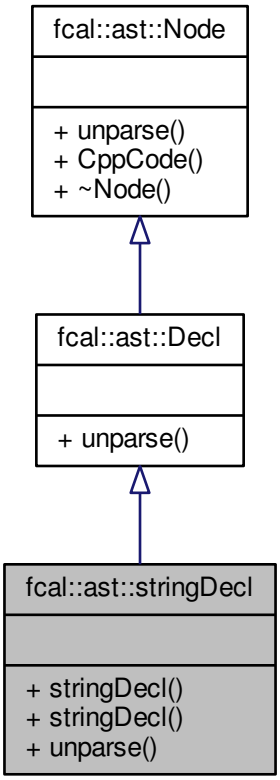
7.57 fcal::ast::stringDecl Class Reference

`#include <decl.h>`

Inheritance diagram for fcal::ast::stringDecl:



Collaboration diagram for fcal::ast::stringDecl:



Public Member Functions

- stringDecl ()
- stringDecl (std::string s1)
- std::string unparse (void)

7.57.1 Constructor & Destructor Documentation

7.57.1.1 fcal::ast::stringDecl::stringDecl ( )

7.57.1.2 fcal::ast::stringDecl::stringDecl (std::string *s1*) [inline],[explicit]

This constructor requires one parameters: string that is the var name

Parameters

s1	the string which is the var name

7.57.2 Member Function Documentation

7.57.2.1 std::string fcal::ast::stringDecl::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Decl.

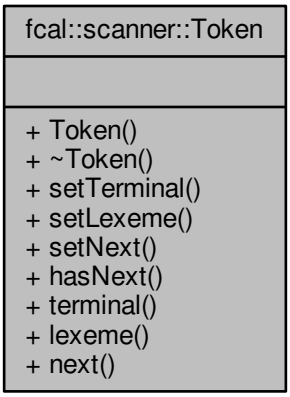
The documentation for this class was generated from the following file:

- include/decl.h

7.58 fcal::scanner::Token Class Reference

`#include <token.h>`

Collaboration diagram for fcal::scanner::Token:



Public Member Functions

- Token ()
- ~Token ()
- void setTerminal (TokenType)
- void setLexeme (std::string)
- void setNext (Token *)
- int hasNext ()
- TokenType terminal ()
- std::string lexeme ()
- Token * next ()

7.58.1 Constructor & Destructor Documentation

7.58.1.1 fcal::scanner::Token::Token ( )

7.58.1.2 fcal::scanner::Token::~Token ( )

7.58.2 Member Function Documentation

7.58.2.1 int fcal::scanner::Token::hasNext ( )

7.58.2.2 std::string fcal::scanner::Token::lexeme (void) [inline]

7.58.2.3 Token* fcal::scanner::Token::next ( ) [inline]

7.58.2.4 void fcal::scanner::Token::setLexeme (std::string *Lexeme*)

7.58.2.5 void fcal::scanner::Token::setNext (Token * *next*)

7.58.2.6 void fcal::scanner::Token::setTerminal (TokenType *terminal*)

7.58.2.7 TokenType fcal::scanner::Token::terminal (void) [inline]

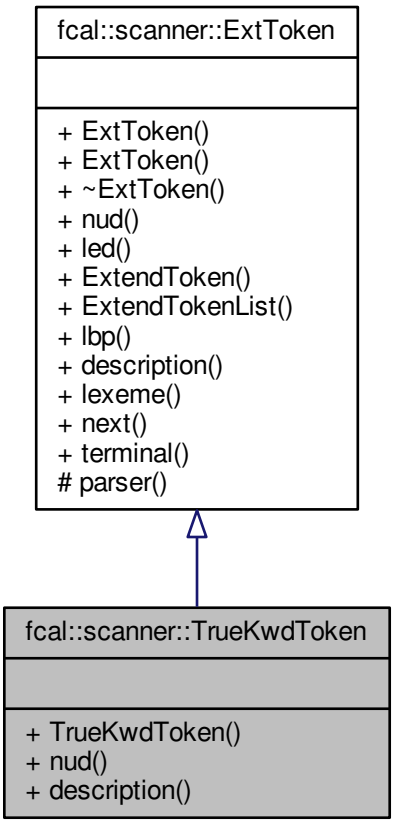
The documentation for this class was generated from the following files:

- include/token.h
- src/token.cc

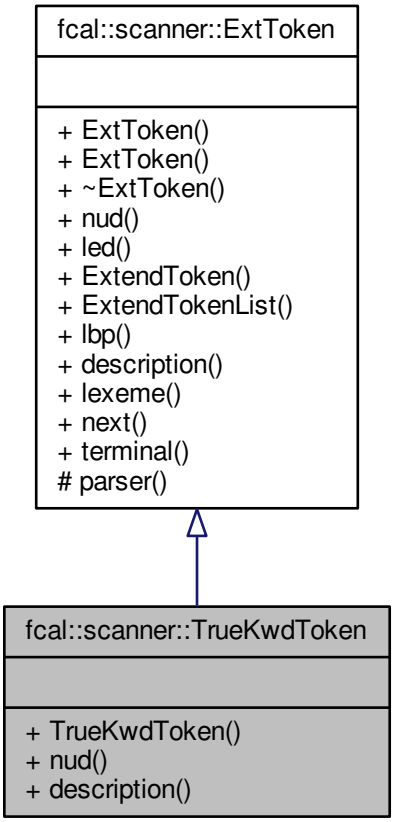
7.59 fcal::scanner::TrueKwdToken Class Reference

```
#include <ext_token.h>
```

Inheritance diagram for fcal::scanner::TrueKwdToken:



Collaboration diagram for fcal::scanner::TrueKwdToken:



Public Member Functions

- TrueKwdToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.59.1 Constructor & Destructor Documentation

7.59.1.1 fcal::scanner::TrueKwdToken::TrueKwdToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.59.2 Member Function Documentation

7.59.2.1 std::string fcal::scanner::TrueKwdToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.59.2.2 parser::ParseResult fcal::scanner::TrueKwdToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

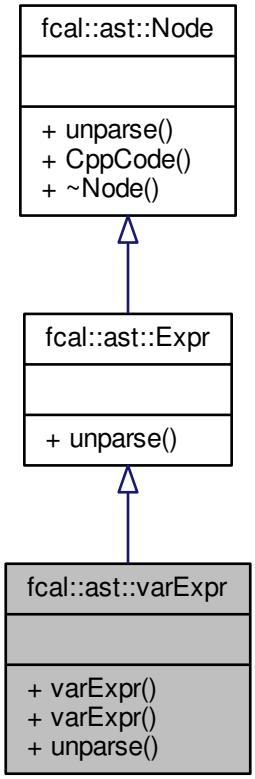
The documentation for this class was generated from the following file:

- include/ext_token.h

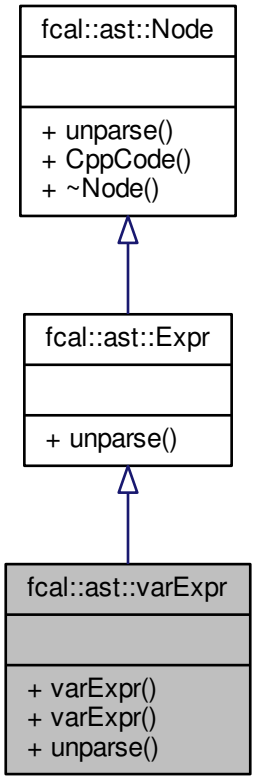
7.60 fcal::ast::varExpr Class Reference

`#include <expr.h>`

Inheritance diagram for fcal::ast::varExpr:



Collaboration diagram for fcal::ast::varExpr:



Public Member Functions

- varExpr ()
- varExpr (std::string s1)
- std::string unparse (void)

7.60.1 Constructor & Destructor Documentation

7.60.1.1 fcal::ast::varExpr::varExpr ( )

7.60.1.2 fcal::ast::varExpr::varExpr (std::string *s1*) [inline], [explicit]

7.60.2 Member Function Documentation

7.60.2.1 std::string fcal::ast::varExpr::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Expr.

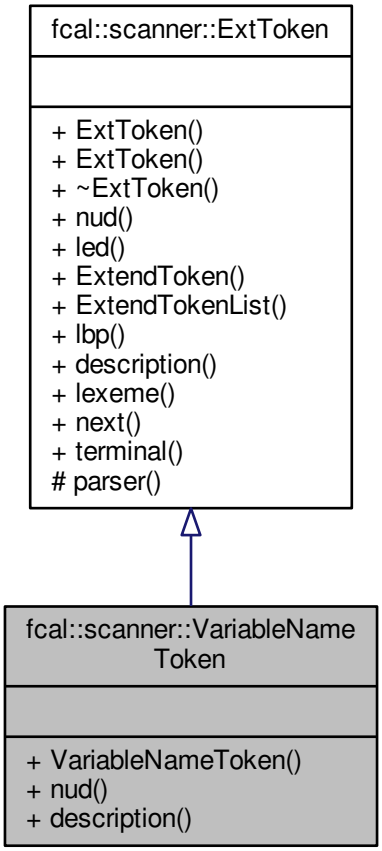
The documentation for this class was generated from the following file:

- include/expr.h

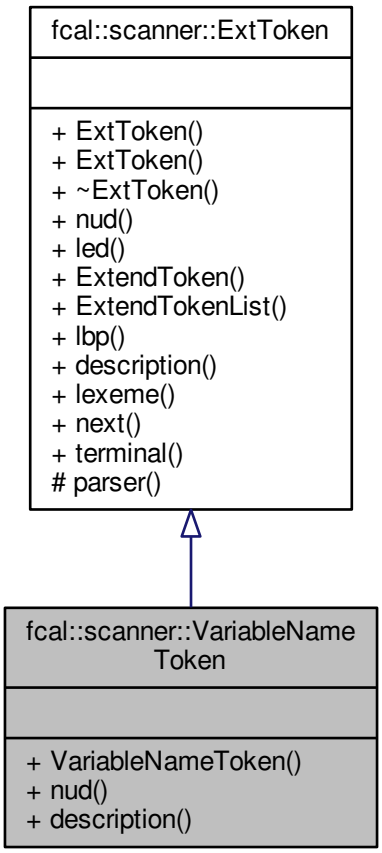
7.61 fcal::scanner::VariableNameToken Class Reference

`#include <ext_token.h>`

Inheritance diagram for fcal::scanner::VariableNameToken:



Collaboration diagram for fcal::scanner::VariableNameToken:



Public Member Functions

- VariableNameToken (parser::Parser ∗p, Token ∗t)
- parser::ParseResult nud ()
- std::string description ()

Additional Inherited Members

7.61.1 Constructor & Destructor Documentation

7.61.1.1 fcal::scanner::VariableNameToken::VariableNameToken (parser::Parser ∗ *p*, Token ∗ *t*) [inline]

7.61.2 Member Function Documentation

7.61.2.1 std::string fcal::scanner::VariableNameToken::description ( ) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

7.61.2.2 parser::ParseResult fcal::scanner::VariableNameToken::nud (void) [inline], [virtual]

Reimplemented from fcal::scanner::ExtToken.

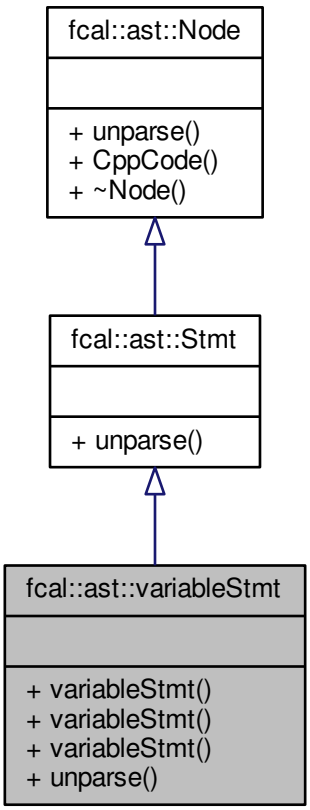
The documentation for this class was generated from the following file:

- include/ext_token.h

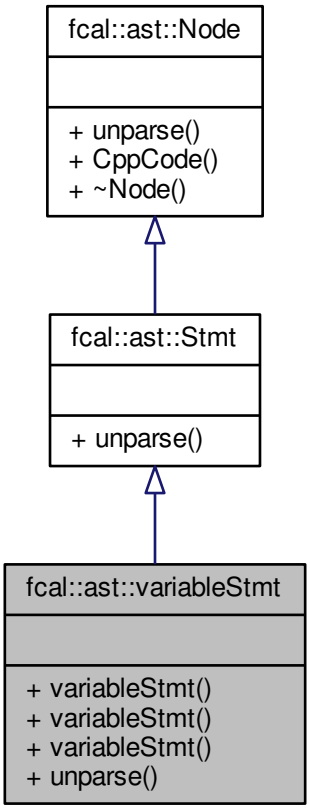
7.62 fcal::ast::variableStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::variableStmt:



Collaboration diagram for fcal::ast::variableStmt:



Public Member Functions

- variableStmt ()
- variableStmt (std::string s1, Expr ∗e1)
- variableStmt (std::string s1, Expr ∗e1, Expr ∗e2, Expr ∗e3)
- std::string unparse (void)

7.62.1 Constructor & Destructor Documentation

7.62.1.1 fcal::ast::variableStmt::variableStmt ( )

7.62.1.2 fcal::ast::variableStmt::variableStmt (std::string *s1*, Expr ∗ *e1*) [inline]

7.62.1.3 fcal::ast::variableStmt::variableStmt (std::string *s1*, Expr ∗ *e1*, Expr ∗ *e2*, Expr ∗ *e3*) [inline]

7.62.2 Member Function Documentation

7.62.2.1 std::string fcal::ast::variableStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

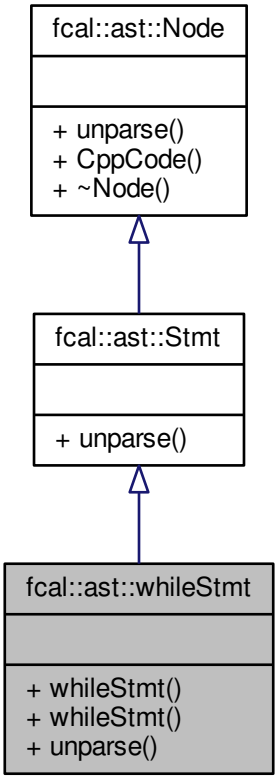
The documentation for this class was generated from the following file:

- include/stmt.h

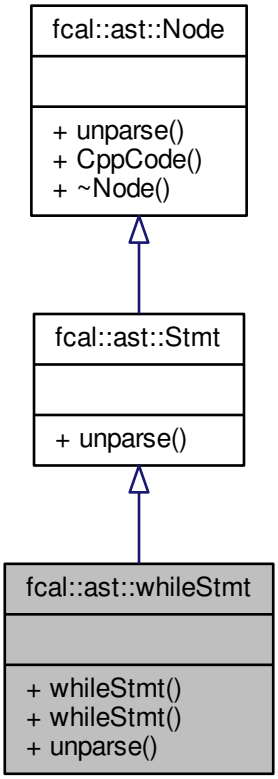
7.63 fcal::ast::whileStmt Class Reference

`#include <stmt.h>`

Inheritance diagram for fcal::ast::whileStmt:



Collaboration diagram for fcal::ast::whileStmt:



Public Member Functions

- whileStmt ()
- whileStmt (Stmt ∗s1, Expr ∗e1)
- std::string unparse (void)

7.63.1 Constructor & Destructor Documentation

7.63.1.1 fcal::ast::whileStmt::whileStmt ( )

7.63.1.2 fcal::ast::whileStmt::whileStmt (Stmt ∗ *s1,* Expr ∗ *e1*) [inline]

7.63.2 Member Function Documentation

7.63.2.1 std::string fcal::ast::whileStmt::unparse (void) [inline], [virtual]

Reimplemented from fcal::ast::Stmt.

The documentation for this class was generated from the following file:

- include/stmt.h

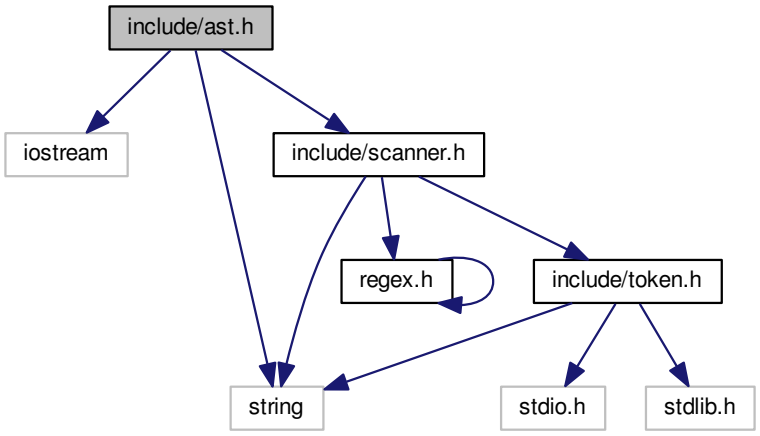
Chapter 8

File Documentation

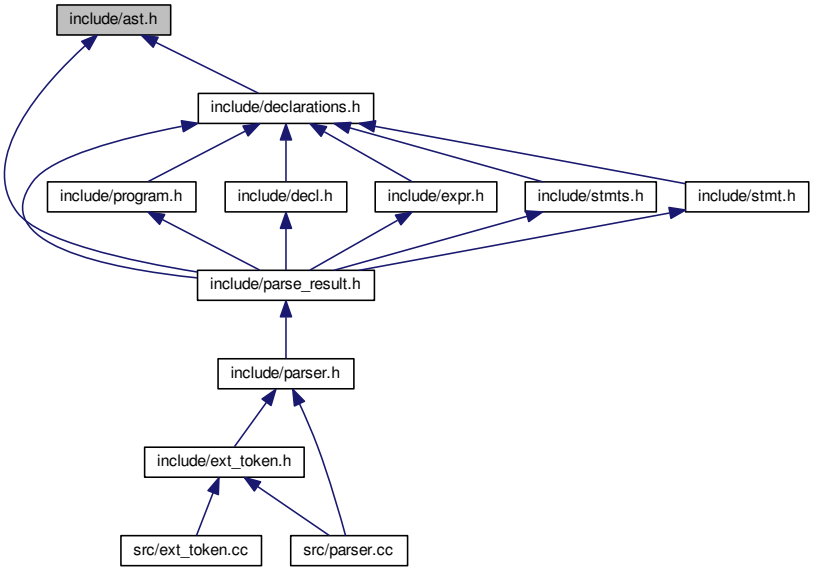
8.1 include/ast.h File Reference

```
#include <iostream>
#include <string>
#include "include/scanner.h"
```

Include dependency graph for ast.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::Node

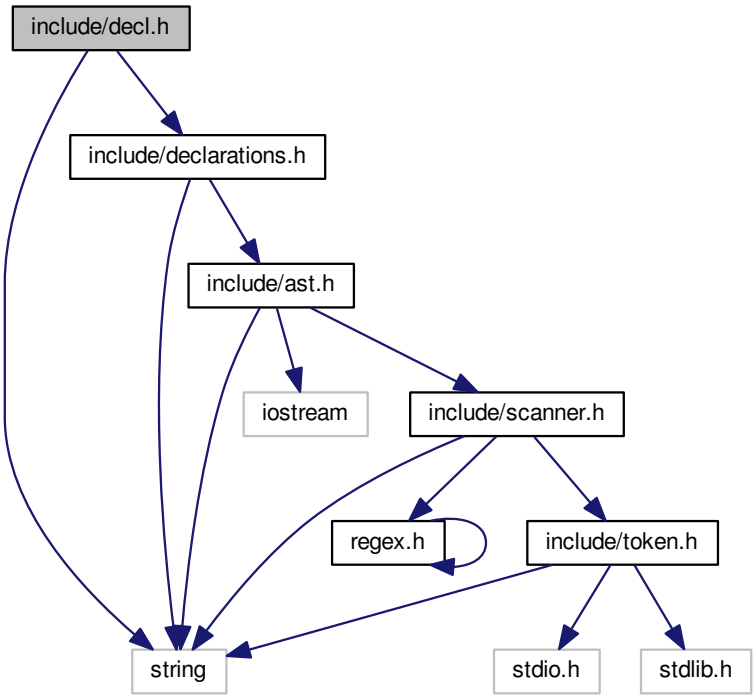
Namespaces

- fcal
- fcal::ast

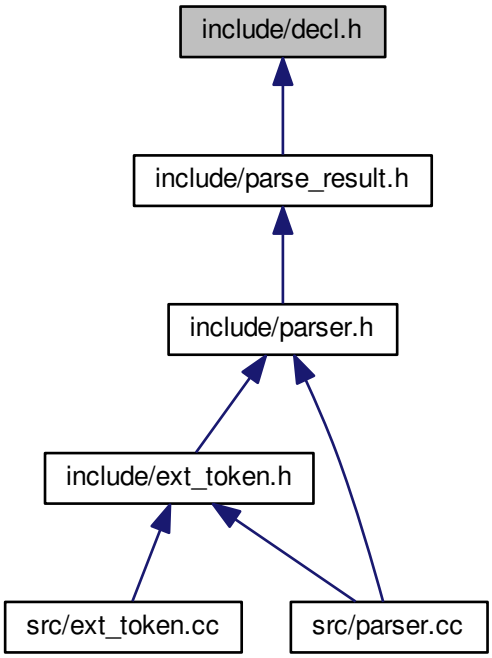
8.2 include/decl.h File Reference

```
#include <string>
#include "include/declarations.h"
```

Include dependency graph for decl.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::matrixDecl
- class fcal::ast::matrixDecl2
- class fcal::ast::intDecl
- class fcal::ast::floatDecl
- class fcal::ast::stringDecl
- class fcal::ast::booleanDecl

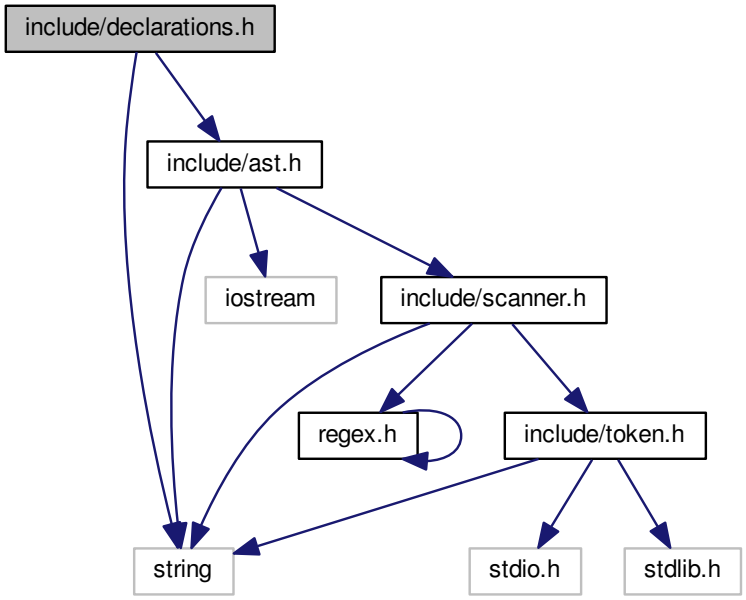
Namespaces

- fcal
- fcal::ast

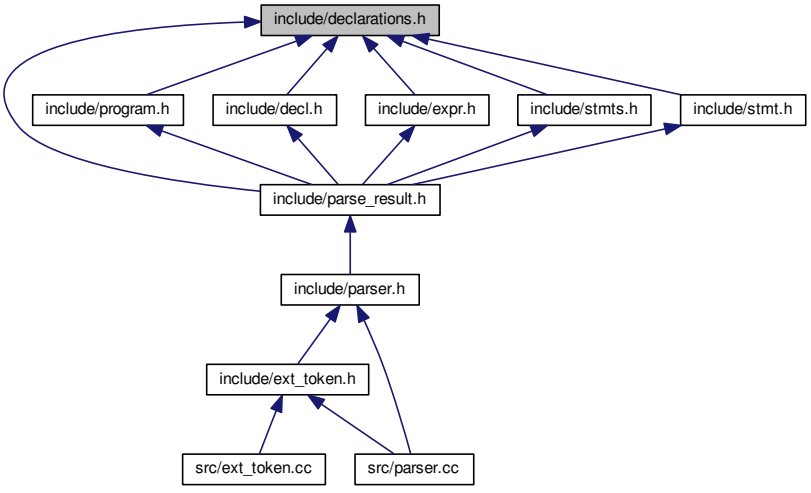
8.3 include/declarations.h File Reference

```
#include <string>
#include "include/ast.h"
```

Include dependency graph for declarations.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::Decl
- class fcal::ast::Program

- class fcal::ast::Expr
- class fcal::ast::Stmts
- class fcal::ast::Stmt

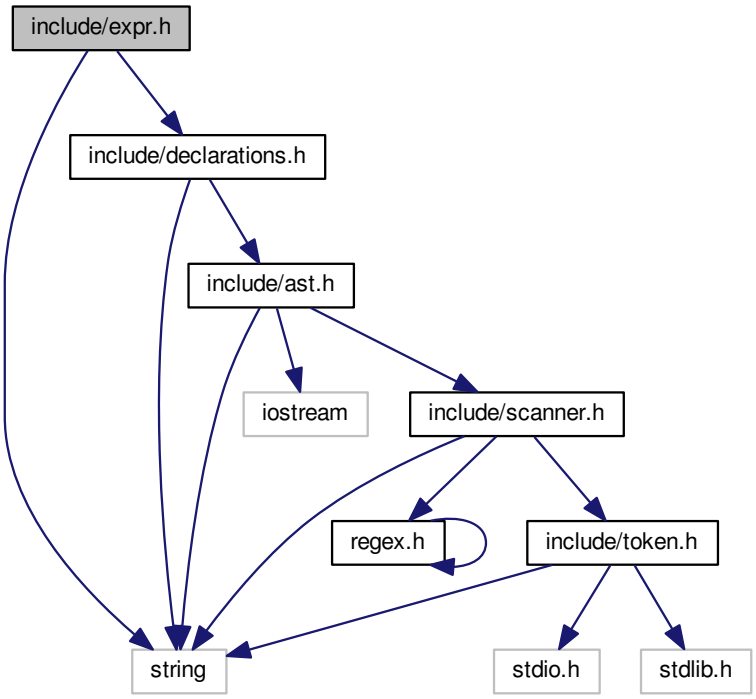
Namespaces

- fcal
- fcal::ast

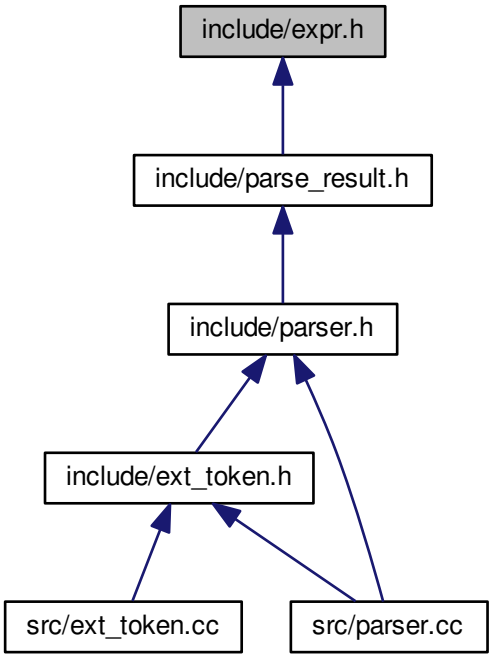
8.4 include/expr.h File Reference

```
#include <string>
#include "include/declarations.h"
```

Include dependency graph for expr.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::plusExpr
- class fcal::ast::minusExpr
- class fcal::ast::divExpr
- class fcal::ast::mulExpr
- class fcal::ast::relationshipExpr
- class fcal::ast::andExpr
- class fcal::ast::orExpr
- class fcal::ast::varExpr
- class fcal::ast::constExpr
- class fcal::ast::booleanExpr
- class fcal::ast::MatrixExpr
- class fcal::ast::nestedExpr
- class fcal::ast::functionCallExpr
- class fcal::ast::letExpr
- class fcal::ast::ifExpr
- class fcal::ast::notExpr

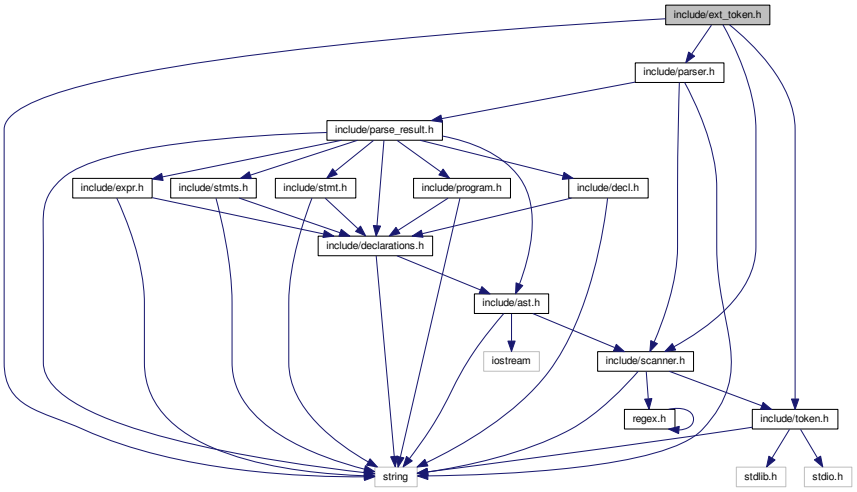
Namespaces

- fcal
- fcal::ast

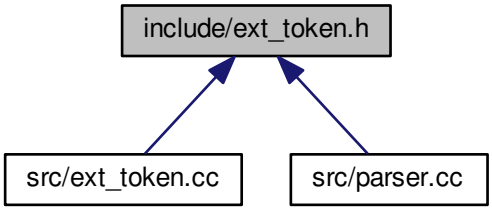
8.5 include/ext_token.h File Reference

```
#include <string>
#include "include/parser.h"
#include "include/scanner.h"
#include "include/token.h"
```

Include dependency graph for ext_token.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::scanner::ExtToken
- class fcal::scanner::NotOpToken
- class fcal::scanner::TrueKwdToken
- class fcal::scanner::FalseKwdToken
- class fcal::scanner::IntConstToken
- class fcal::scanner::FloatConstToken
- class fcal::scanner::StringConstToken
- class fcal::scanner::CharConstToken

- class fcal::scanner::VariableNameToken
- class fcal::scanner::IfToken
- class fcal::scanner::LetToken
- class fcal::scanner::LeftParenToken
- class fcal::scanner::PlusSignToken
- class fcal::scanner::StarToken
- class fcal::scanner::DashToken
- class fcal::scanner::ForwardSlashToken
- class fcal::scanner::RelationalOpToken
- class fcal::scanner::EndOfFileToken

Namespaces

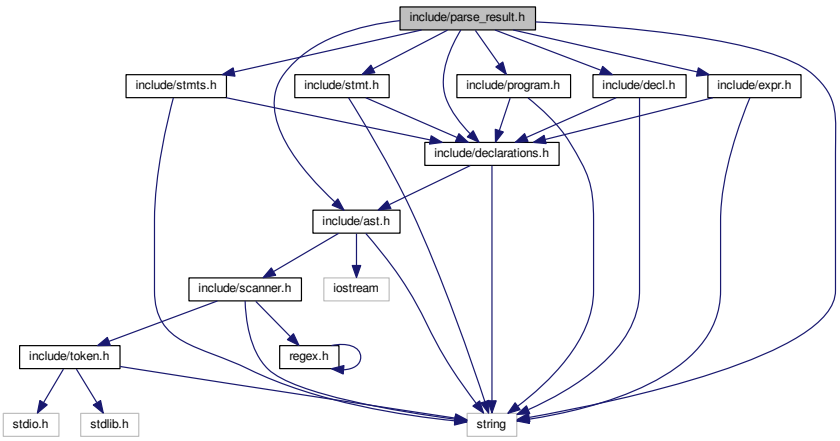
- fcal
- fcal::scanner

8.6 include/mainpage.h File Reference

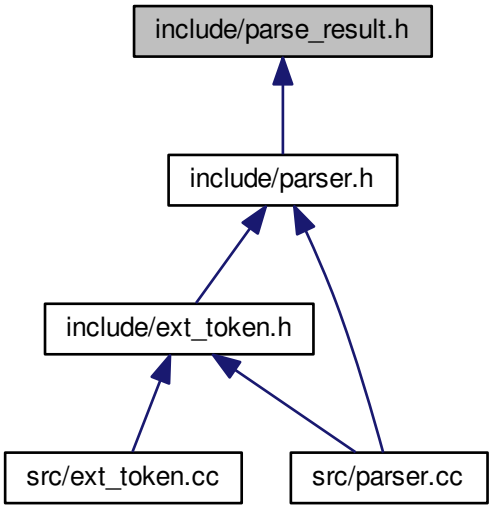
8.7 include/parse_result.h File Reference

```
#include <string>
#include "include/ast.h"
#include "include/declarations.h"
#include "include/program.h"
#include "include/decl.h"
#include "include/expr.h"
#include "include/stmts.h"
#include "include/stmt.h"
```

Include dependency graph for parse_result.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::parser::ParseResult

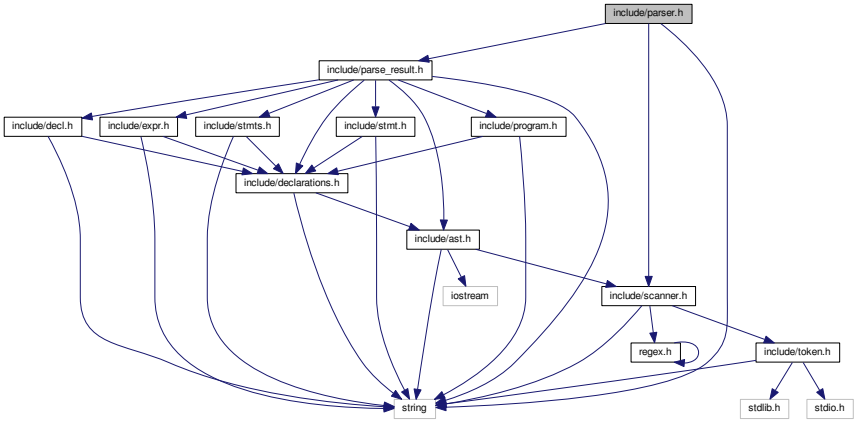
Namespaces

- fcal
- fcal::parser

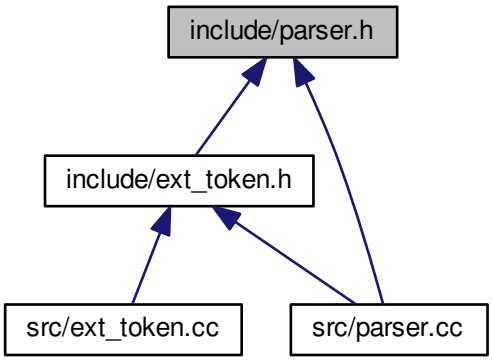
8.8 include/parser.h File Reference

```
#include <string>
#include "include/parse_result.h"
#include "include/scanner.h"
```

Include dependency graph for parser.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::parser::Parser

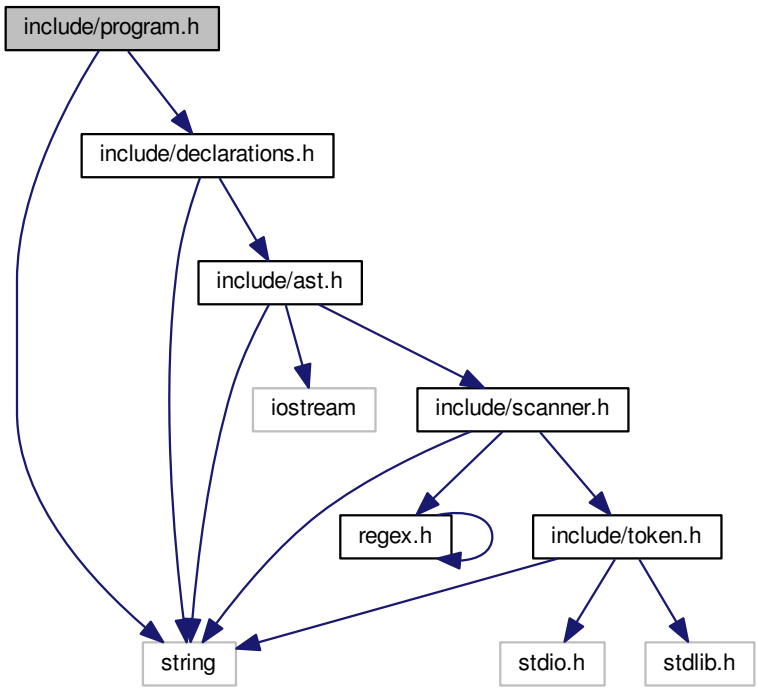
Namespaces

- fcal
- fcal::scanner
- fcal::parser

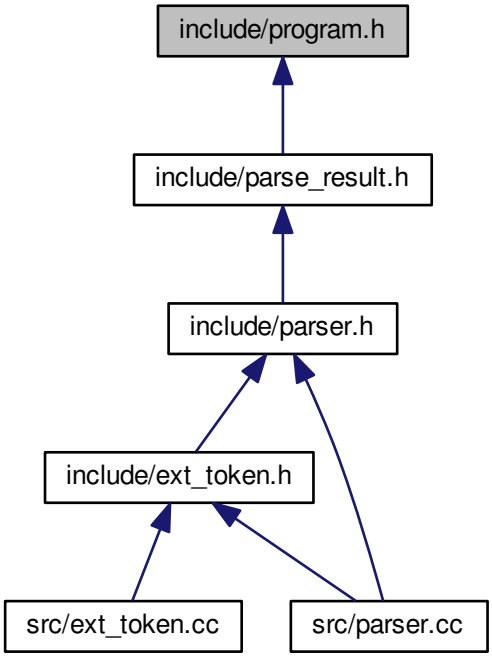
8.9 include/program.h File Reference

```
#include <string>
#include "include/declarations.h"
```

Include dependency graph for program.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::program

Namespaces

- fcal
- fcal::ast

8.10 include/read_input.h File Reference

Namespaces

- fcal
- fcal::scanner

Functions

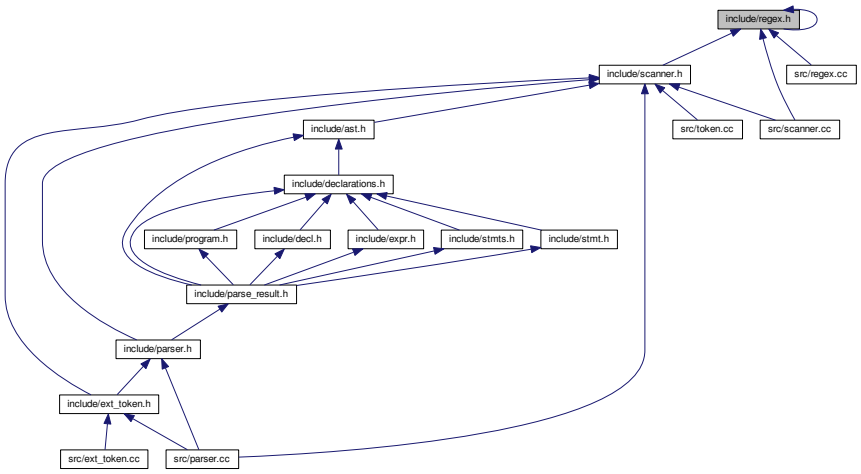
- char * fcal::scanner::ReadInput (int argc, char **argv)
- char * fcal::scanner::ReadInputFromFile (const char *filename)

8.11 include/regex.h File Reference

```
#include <regex.h>
```

Include dependency graph for regex.h:

This graph shows which files directly or indirectly include this file:



Namespaces

- fcal
- fcal::scanner

Functions

- regex_t * fcal::scanner::make_regex (const char *pattern)
- int fcal::scanner::match_regex (regex_t *re, const char *text)

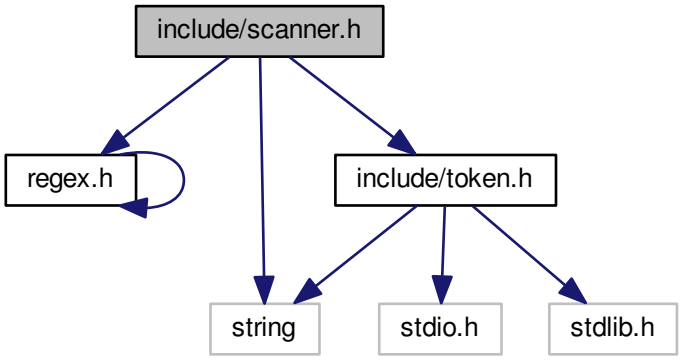
Variables

- const int fcal::scanner::kRegexNSub = 1

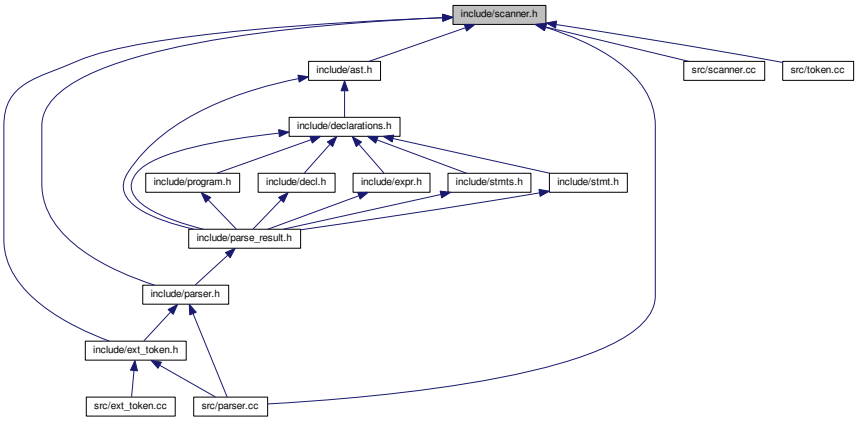
8.12 include/scanner.h File Reference

```
#include <regex.h>
#include <string>
#include "include/token.h"
```

Include dependency graph for scanner.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::scanner::Scanner

Namespaces

- fcal
- fcal::scanner

Macros

- #define ARRAYSIZE (kLexicalError-1)

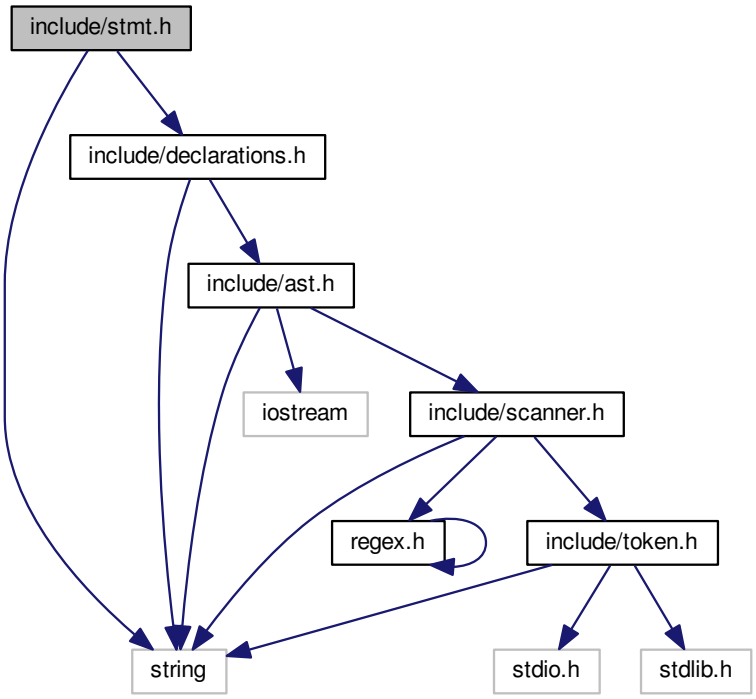
8.12.1 Macro Definition Documentation

8.12.1.1 #define ARRAYSIZE (kLexicalError-1)

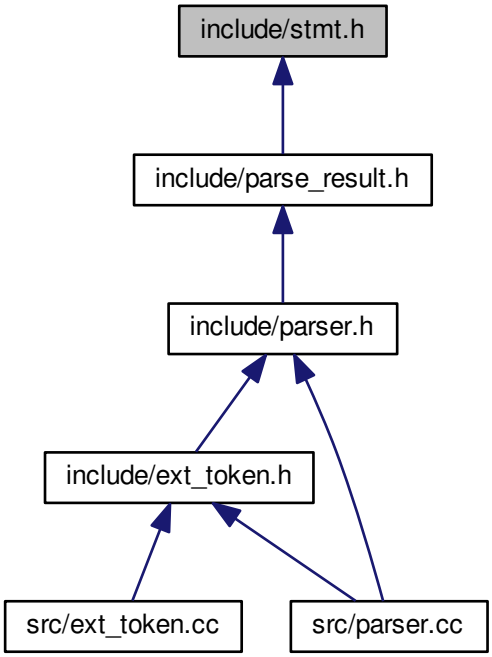
8.13 include/stmt.h File Reference

```
#include <string>
#include "include/declarations.h"
```

Include dependency graph for stmt.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::declStmt
- class fcal::ast::stmtsStmt
- class fcal::ast::ifStmt
- class fcal::ast::ifelseStmt
- class fcal::ast::variableStmt
- class fcal::ast::printStmt
- class fcal::ast::repeatStmt
- class fcal::ast::whileStmt
- class fcal::ast::semiStmt

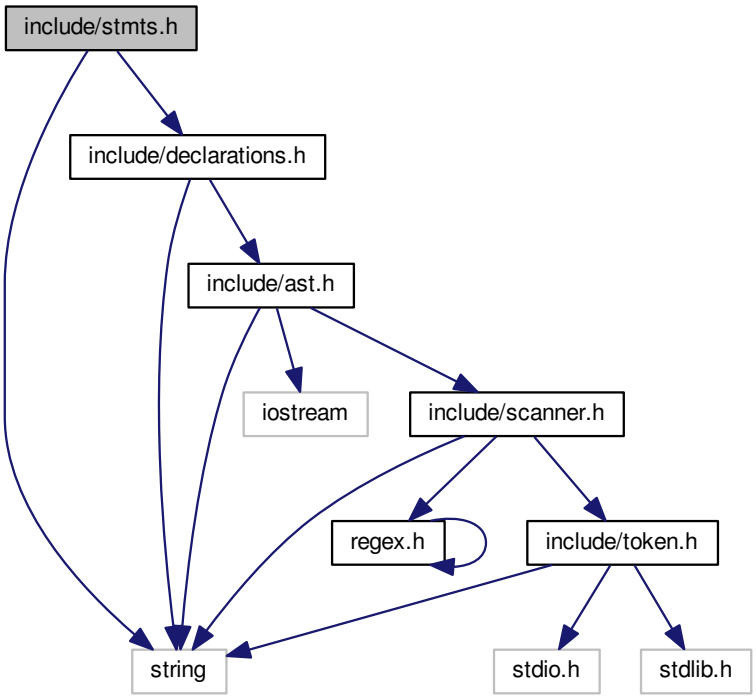
Namespaces

- fcal
- fcal::ast

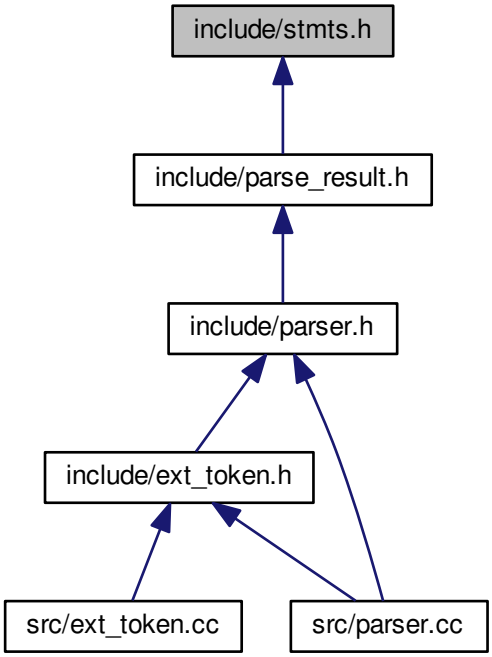
8.14 include/stmts.h File Reference

```
#include <string>
#include "include/declarations.h"
```

Include dependency graph for stmts.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::ast::emptyStmts
- class fcal::ast::seqStmts

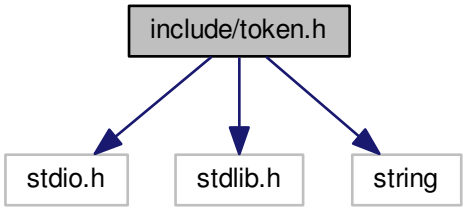
Namespaces

- fcal
- fcal::ast

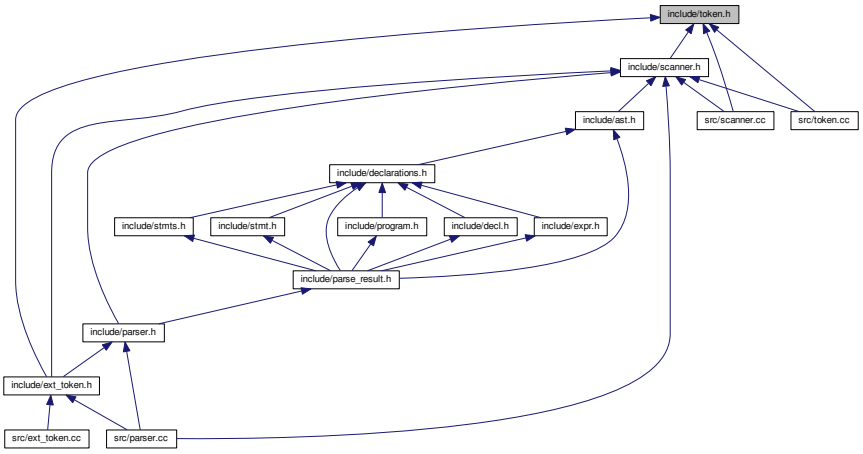
8.15 include/token.h File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <string>
```

Include dependency graph for token.h:



This graph shows which files directly or indirectly include this file:



Classes

- class fcal::scanner::Token

Namespaces

- fcal
- fcal::scanner

Macros

- #define TRUE 1
- #define FALSE 0

Typedefs

- typedef enum kTokenEnumType fcal::scanner::TokenType

Enumerations

- enum fcal::scanner::kTokenEnumType {
  fcal::scanner::kIntKwd, fcal::scanner::kFloatKwd, fcal::scanner::kBoolKwd, fcal::scanner::kTrueKwd,
  fcal::scanner::kFalseKwd, fcal::scanner::kStringKwd, fcal::scanner::kMatrixKwd, fcal::scanner::kLetKwd,
  fcal::scanner::kInKwd, fcal::scanner::kEndKwd, fcal::scanner::kIfKwd, fcal::scanner::kThenKwd,
  fcal::scanner::kElseKwd, fcal::scanner::kRepeatKwd, fcal::scanner::kWhileKwd, fcal::scanner::kPrintKwd,
  fcal::scanner::kToKwd, fcal::scanner::kIntConst, fcal::scanner::kFloatConst, fcal::scanner::kStringConst,
  fcal::scanner::kVariableName, fcal::scanner::kLeftParen, fcal::scanner::kRightParen, fcal::scanner::kLeft↩
  Curly,
  fcal::scanner::kRightCurly, fcal::scanner::kLeftSquare, fcal::scanner::kRightSquare, fcal::scanner::kSemi↩
  Colon,
  fcal::scanner::kColon, fcal::scanner::kAssign, fcal::scanner::kPlusSign, fcal::scanner::kStar,
  fcal::scanner::kDash, fcal::scanner::kForwardSlash, fcal::scanner::kLessThan, fcal::scanner::kLessThan↩
  Equal,
  fcal::scanner::kGreaterThan, fcal::scanner::kGreaterThanEqual, fcal::scanner::kEqualsEquals, fcal↩
  ::scanner::kNotEquals,
  fcal::scanner::kAndOp, fcal::scanner::kOrOp, fcal::scanner::kNotOp, fcal::scanner::kEndOfFile,
  fcal::scanner::kLexicalError }

8.15.1 Macro Definition Documentation

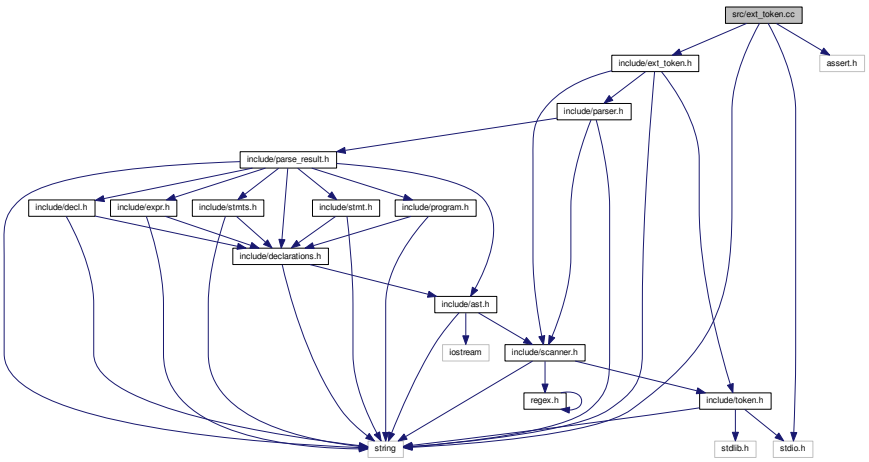
8.15.1.1 #define FALSE 0

8.15.1.2 #define TRUE 1

8.16 src/ext_token.cc File Reference

```
#include "include/ext_token.h"
#include <assert.h>
#include <stdio.h>
#include <string>
```

Include dependency graph for ext_token.cc:



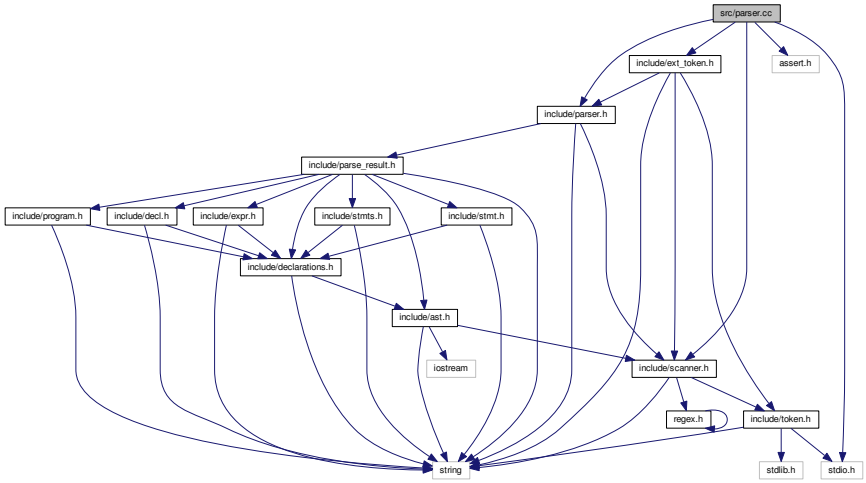
Namespaces

- fcal
- fcal::scanner

8.17 src/parser.cc File Reference

```
#include "include/parser.h"
#include <assert.h>
#include <stdio.h>
#include "include/ext_token.h"
#include "include/scanner.h"
```

Include dependency graph for parser.cc:



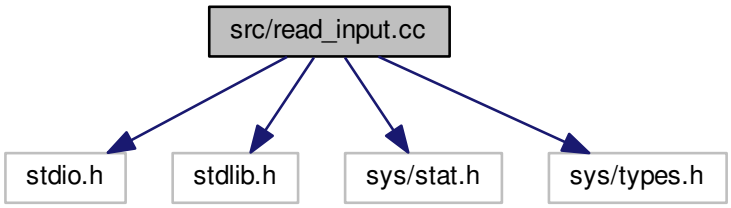
Namespaces

- fcal
- fcal::parser

8.18 src/read_input.cc File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <sys/stat.h>
#include <sys/types.h>
```

Include dependency graph for read_input.cc:



Namespaces

- fcal
- fcal::scanner

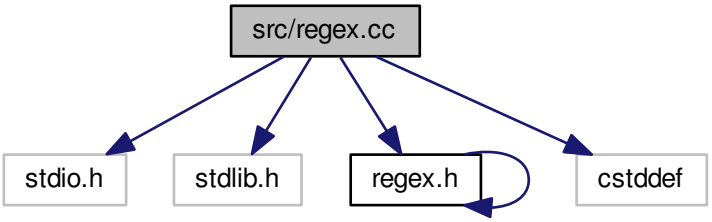
Functions

- char * fcal::scanner::ReadInputFromFile (const char *filename)
- char * fcal::scanner::ReadInput (int argc, char **argv)

8.19 src/regex.cc File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <regex.h>
#include <cstddef>
```

Include dependency graph for regex.cc:



Namespaces

- fcal
- fcal::scanner

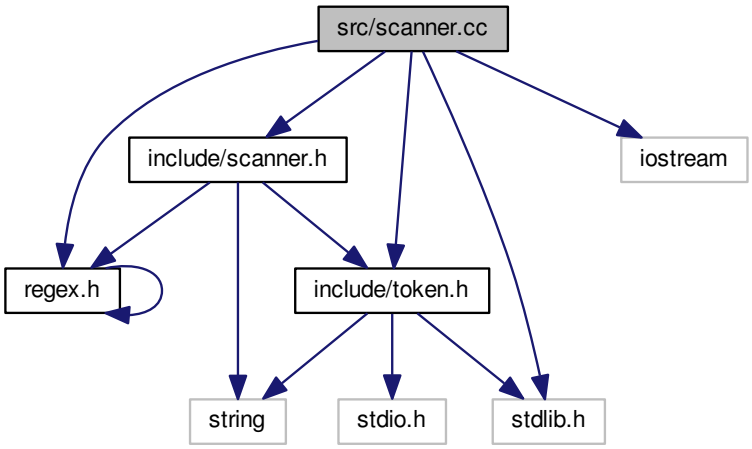
Functions

- regex_t * fcal::scanner::make_regex (const char *pattern)
- int fcal::scanner::match_regex (regex_t *re, const char *text)

8.20 src/scanner.cc File Reference

```
#include "include/scanner.h"
#include <stdlib.h>
#include <iostream>
#include "include/regex.h"
#include "include/token.h"
```

Include dependency graph for scanner.cc:



Namespaces

- fcal
- fcal::scanner

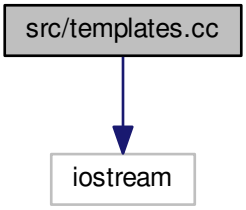
Functions

- void fcal::scanner::print (Token *head)

8.21 src/templates.cc File Reference

```
#include <iostream>
```

Include dependency graph for templates.cc:



Classes

- class MySequence< T, N >

Functions

- int main ()

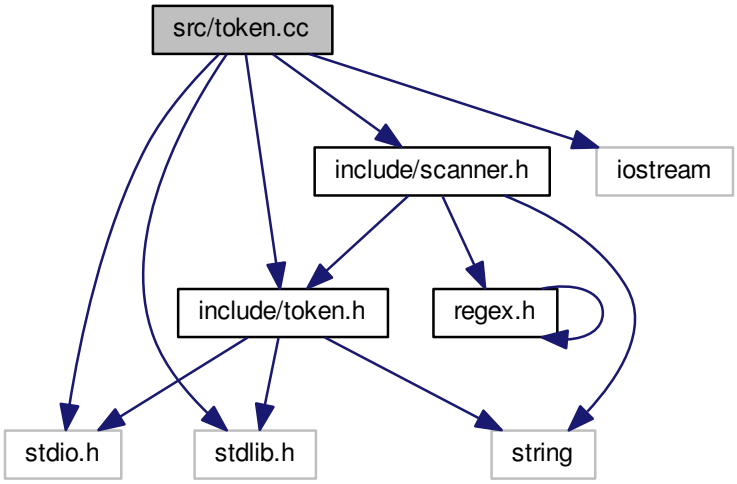
8.21.1 Function Documentation

8.21.1.1 int main ( )

8.22 src/token.cc File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <iostream>
#include "include/token.h"
#include "include/scanner.h"
```

Include dependency graph for token.cc:



Namespaces

- fcal
- fcal::scanner

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